An Urban Design Method for Rehabilitating Historic cities in Iran

The Case of Shiraz Historic Fabric

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Abstract

Historic cities are valuable, cultural, economic and identity assets of each nation that project a culture's characteristics, beliefs, lifestyles and arts. They present the socio-economic, socio-cultural and socio-political identity and traditions of residents of many ethnicities in established societies. In this regard, there is a large body of research and empirical actions to conserve, revive, renew and rehabilitate these precious centres for future generations and for people around the world as both national and international heritage. For many decades, and indeed, centuries, in Middle Eastern countries, charters that were mostly established by European and western experts were used to preserve heritage. These charters do little to support the different layers of rehabilitation of historic Islamic cities in Middle Eastern countries, partly due to lack of recognition of religion in socio-demographic patterns, as well as the influence of religious law on the structure of city development, urban activities and socio-economics.

Therefore, the aim of this research is to develop an urban design method to establish new principles for rehabilitation of historic cities in Iran. The conceptual framework firstly reviews theories and practical experience of rehabilitation of historic European and Islamic cities to link existing knowledge to current experience in Iran. It then introduces livelihood theory as a theoretical solution which can support the rehabilitation process in Shiraz and in other historic cities in Iran. Both qualitative and quantitative research strategies are employed to integrate ethnography, urban morphology and urban rehabilitation techniques. The research strategy is used to analyse the historical development of the city and identify key aspects of socio-spatial, socio-economic, socio-cultural, religious and physical form components, in relation to livelihood of residents. Data-collection techniques include: analysis of maps, governmental and historic documents; building surveys; questionnaires, and semi-structured interviews. The data supported the formation of initial proposals for rehabilitation of historic cities in Iran, with particular reference to Shiraz historic core. Final recommendations were formulated which inform the policies for this objective.

The findings reveal that: the historic core does not meet the needs of contemporary life due to inaccessibility and buildings which are left in a state of disrepair; the livelihood of residents has not been considered in the implementation of rehabilitation plans; collaboration between local government departments needs to be improved; residents' participation could be a valuable tool in the implementation of a rehabilitation strategy, due to the local knowledge and skills possessed by the residents and the potential financial benefit in upgrading the skills of some residents; the interrelationship between religious policies and socio-cultural and economic factors should be considered of foremost importance in the process of rehabilitation of historic Iranian cities, particularly in Shiraz, and the effect on residents from new approaches to rehabilitation must be considered. Key recommendations, which address the key findings, are presented as a series of short, medium and long-term projects at both micro and macro scale in the historic core.

The contribution to knowledge of this research is the integration of livelihood theory and urban morphology to develop an urban design method to establish new principles for rehabilitation of historic cities in Iran.

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Contents

Table of Figures

Table of tables

Introduction

The old context of historic cities in Iran presents the artistic and historic characteristics of the country and indicates the customs and culture in the form of historical buildings and urban form elements. But currently this context is faced with numerous problems such as lack of civil facilities and social problems like drug addiction and crime. Historic urban districts are special places not only for their cultural heritage but also due to their urban pattern and may be in danger of losing their traditional character if relevant measures are not put in place to ensure the continuity of this character (Kiani & Ali Kamar & Shahverdi, 2014).

This research is focused on the rehabilitation of historic cities in Iran in particular on Shiraz historic core, for identifying and assessing the key challenges, to establish new urban design methods and city level policies for rehabilitation.

This opening chapter seeks to explain why the topic of rehabilitating historic cities in Iran was chosen. The chapter also, defines the research problem, research questions, aims and objectives, the research strategy and structure. The chapter will conclude with an outline of how the thesis will unfold.

I. Context to the study

The central issue that will be dealt with in this thesis is to address the need for a new urban design method when addressing the challenge of rehabilitating historic cities in Iran, namely that livelihood theory should be linked to rehabilitation methodology. To address this topic, key terminology used throughout this thesis will be defined and where necessary critically evaluated to establish unambiguous meaning and clear definitional boundaries for the study. In this regard, the approaches, methods and techniques need to be identified. Therefore, based on a literature review, the following terms will be the subject of consideration: rehabilitation, renewal (renovation or redevelopment), revitalisation and regeneration.

Rehabilitation – is taken in this study as an umbrella term, which involves various methods, such as, renewal, revitalisation and regeneration. It is an approach that can include whole neighbourhood areas, districts and cities, not individual buildings, but recognises that it will indirectly affect the individual buildings and monuments too. It deals with the social aspect of the historic fabric as well as the built form.

It recognises that the area surrounding historic monuments are as important as the monuments themselves (Sutton and Fahmi, 2002)

Renewal – is a method which focuses on buildings, landmark monuments and cultural heritage. It focuses on individual buildings or to historic districts rather than the whole urban fabric and concentrates on reconstruction and repair (Sutton and Fahmi, 2002).

Revitalisation – is a method which includes not only the physical urban fabric but also the social structure. This method maintains cultural heritage, identity and traditions (Ramlee, Omar, Yunus, & Samadi, 2015).

Regeneration – is defined by Brantenberg as including spatial, social, financial, organisational and legal aspects, and can have many different scales – from country-wide to town-size, to individual buildings (Karsten, 2015). It has a physical, social and economic focus and the aim is to reverse decline in deprived neighbourhoods by attracting economic investment and raising employment rates (Silverman, Patterson, Yin and Wu, 2015; Couch, Sykes and Boerstinghaus, 2011; Zheng, Sheng, and Wang, 2013). These definitions are expanded in Chapter 1, section 3.

Rehabilitation has meant different things in different periods of history. After World War 2, in Europe, rehabilitation mainly consisted of renewal programmes – that is, restoring the urban fabric. At the same time, reconstruction, the rebuilding of buildings with specific cultural and historical importance, was also in practice. In the 1980s, revitalisation was the main focus of rehabilitation and involved consideration of social as well as physical structures. The key is that urban rehabilitation is a holistic approach, within which the specific methods of renewal, revitalisation and regeneration become methods to be applied, with reference to the rehabilitation of the urban environment, including spatial and the social (Karsten, 2015). Table I.1 summarises the definitions of rehabilitation, renewal, revitalisation and urban regeneration, and shows that rehabilitation is the overall approach and includes the three main methods, each with individual techniques.

Approach	Rehabilitation		
Methods	**Renewal (Renovation or Redevelopment)**	**Revitalisation (Reintegration)**	**Urban regeneration**
Scope of methods	**Physical:** focus on buildings and landmark monuments; Little resident participation	**Physical and social:** conserves cultural identity and traditions; redevelops deprived and derelict urban areas	**Physical, Social and Economic:** aims to reverse deprivation in neighbourhoods and create sustainable communities
Techniques	- Adaptive reuse - Conversion - Conservation - Restoration - Repair - Restructuring - Reconstruction	- Protection - Consolidation - Recuperation - Preservation - Remodelling - Reintegration - Restatement	- Reintroducing investment - Increasing employment - Enhancing quality of life
References	Karsten, 1993 Steinberg,1996; Anderson,1964	Karsten, 1993; Goetze,1979; Muneerudeen, Al Khani & Furlan, 2016; Ramlee, Omar, Yunus, & Samadi, 2015;	Couch, Sykes and Boerstinghaus, 2011; Zhang, Sheng and Wang, 2013

Table I. 1 A summary of the approach, methods and techniques in relation to urban rehabilitation

II. Background

As historic cities are coherent entities, they are clearly identified by their traditional character and architectural values. They reflect the accomplishments of a significant cross-section of world cultures, and while some represent the efforts of indigenous cultures, others display the impact of colonial and globalised activities. All mix their diverse influences in a creative fashion to create unique forms and patterns of use. It is these attributes and their value as a capital asset that make historical urban districts worthy of rehabilitation (Tavasoli, 1987).

Historic areas of cities are also of high historic importance and need to be conserved for future generations. The historic regions within Iran's cities date back to 4000 BC (Kheirabadi, 2000). Literature on historic urban centres and urban planning show that in developing countries such as Iran, most cities face similar issues regarding the historic fabric.

Historical cities in Iran represent the artistic and historical heritage of the country and display customs and culture reflected in historical buildings and other built forms. Numerous urban experts and officials have encountered challenges in implementing changes, as some of them disagree with any kind of changes due to the cultural-historical importance of this part of the cities (Falamaki, 2005).

III. Research problem

Sarvarzadeh and Abidin (2012) identified that there are multiple problems facing residents in the urban historic areas. These include: the lack of a legal system regarding citizens' participation; a lack of structure in the decision-making process regarding mixed-heritage rehabilitation and a lack of awareness of heritage conservation.

With current trends of rapid growth in population, intense pressure to develop economically and an increasing land value in historic areas, local authorities are failing to recognise the importance of the residents' participation in resolving decision-making issues facing the historic areas, leading to the loss of protection of cultural heritage (Yung, and Chan, 2011). Moreover, study of relevant literature reveals that authorities admit to the need for increasing the role of the community in the policy-making process, yet fail to implement this in practice (Taylor, 2016). Therefore, evaluative research of urban historic fabrics leads to the finding that the role and function of individuals is essential in the decision-making and policy-making process in historic cities in Iran.

Iran's experience of rehabilitation is mostly based upon practice previously carried out in European countries. For many years, the improvement and rehabilitation of historic cities and continuing urban developments in those areas have been the subject of many challenges to the profession of architecture, urban design and urban planning and development. Some intervention methods and techniques, such as renovation, reconstruction and revitalisation; consolidation, preservation, conservation, restoration and demolition have been considered by Iranian urban planners and urban consultants in the Iranian Ministry of Housing and Roads, following the experiences of European countries (Moghtader and Yavari, 1998).

However, the European style of intervention had limited success in Iran due to the lack of correspondence between the theory and practice of rehabilitating historic cities (Soltanzadeh, 1991). But historical contexts, their residents and governmental agencies are forced to adapt due to modern developments in building technology, mobility, sanitation, recycling, etc. Some of the specific cultural issues for Iranian historic fabrics are as follows:

Firstly, ancient cities highly value the historical and cultural-religious factors in the heart of the historical contexts. These are also symbols of national identity which will provide a sense of Iranian culture for future generations and which cultural heritage institutions are trying to protect (Pirnia, 2004).

Secondly, the people who live in historic contexts suffer from problems caused by the exhaustion of their urban tissues. These are the result of the lack of comprehensive construction and renewal policies; lack of accessibility to the different parts of historic area; transportation and vehicle movements and emigration of residents out of the historic core due to poor security. It can also include immigration of poor families and different tribes from inside and outside Iran to Shiraz historic core. The overall composite morphology of the place is being transformed by infrastructure (such as the replacement of water channels with modern pipelines and the introduction of telegraph poles for electricity and telephones) and social factors (such as private gardens being built over for housing). The role of authorities is as custodian organizations, providing a holistic approach to urban development, while seeking to meet the needs of residents, mainly in the construction of new roads in these tissues (Purjafar & Mahmoudi, 2009).

One cannot deny that there have been positive interventions in historical contexts, such as upgrading buildings to be earthquake resistant, or clarifying which organisations are responsible for intervention. For example, before the massive earthquake of 2003, the city of Bam, in Iran, with its history spanning thousands of years, was the largest adobe city in the world. Following this catastrophe, questions of durability of buildings and responsibility for management of historic fabric were raised. The result of these questions was the introduction of some of these positive interventions.

Unfortunately, the unilateral attitude of agencies, such as local government, has caused great and irreparable damage to national resources. There have been three main methods used, in terms of intervention, to Iranian historic cities:

- A renewal method for the urban development of historic contexts, preserving the physical and the cultural aspects.
- A revitalisation method for the development of historic areas, whereby the cultural heritage and social identity is preserved.
- A comprehensive approach to the historic districts, which uses renewal, revitalisation and urban regeneration methods.

In the comprehensive approach, an understanding of various aspects and factors, such as traditions, economics, religion physical form, livelihood of residents, contribution of residents to urban improvement activities and immigration can help planners make more accurate and comprehensive decisions regarding the rehabilitation of historic areas (Loew, 2003).

In Shiraz, the qualities of the special historic areas were often not appreciated until the 1970s, and only individual buildings, structures and other artefacts were subject to preservation and conservation practices. It is only since the 1970s that the historic urban districts have been re-evaluated with respect to their positive qualities, and rehabilitation of these areas as functioning parts of their cities has become popular (Kheirabadi, 2000).

However, existing intervention policies are not practical for keeping tradition, cultural identity or maintaining functionality of monuments, resulting in solutions which only deal with one or two aspects of rehabilitation, instead of a comprehensive solution. Therefore, a new approach to urban rehabilitation in Iran, particularly Shiraz, is needed which is based on the needs of Iranian cities, with consideration to the religion and social needs of the residents. This will lead to a better co-ordinated management of cultural heritage and benefit the residents in terms of their livelihood.

IV. Historical context of Shiraz

The ancient city of Shiraz is located in the central part of Fars Province, a key area of Persian civilisation. The massive ruins of the Persian Empire's grand palace, Persepolis, about 2500 years old, are situated about 30 km north-east of Shiraz. The earliest reference to Shiraz is on Elamite clay tablets dating to 2000 BCE. The name Shiraz also appears on clay seas found at Qasr-I Abu Nasr, a Sassanid ruin, east of the city, (2nd century AD). Cuneiform records from Persepolis show that Shiraz was a significant township in Achaemenes times (550-330 BC) (Durant, 1935). Figure I.1, shows the location of Shiraz historic core in ancient and modern maps of Iran.

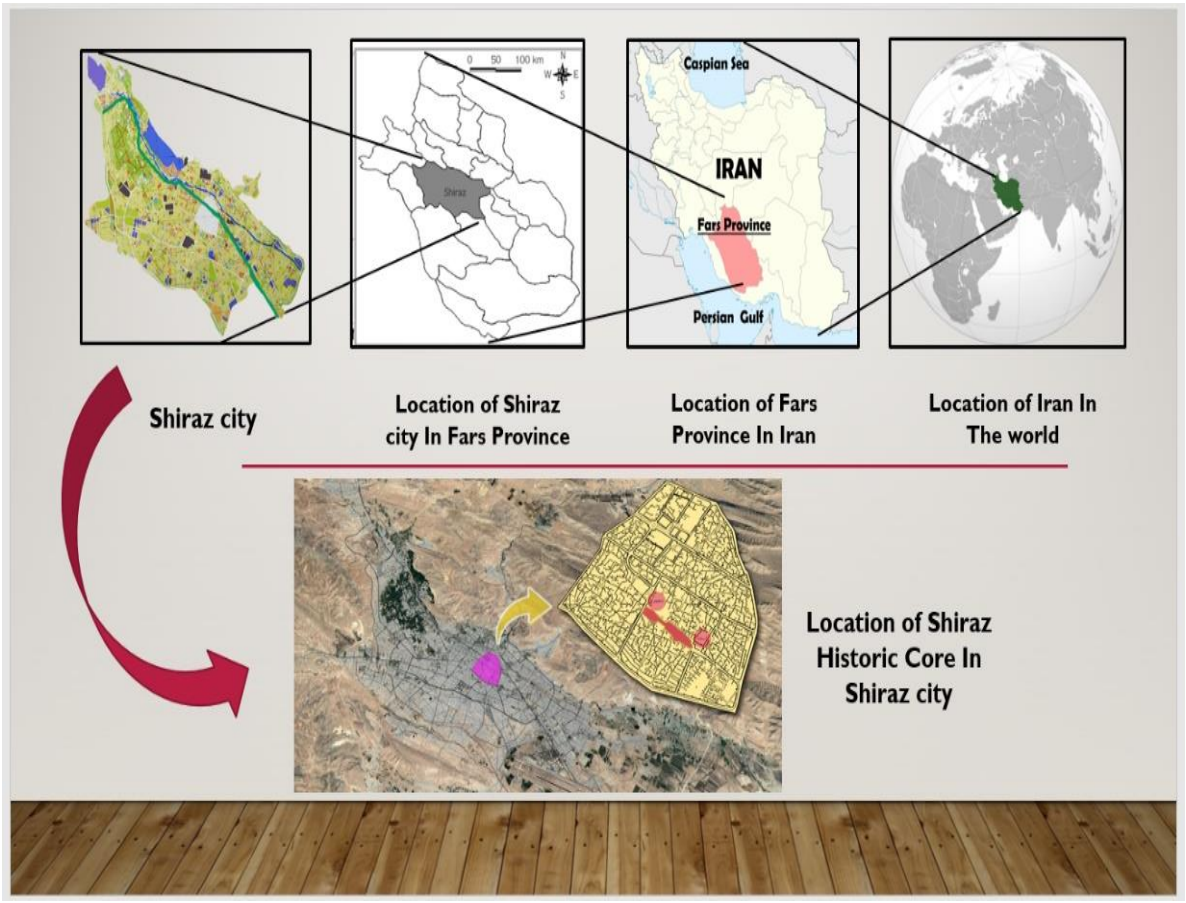

Figure I. 1 Location of Shiraz's historic fabric within Iran. (Source: Author based on Google map)

The city of Shiraz became a provincial capital in 662AD after the Arab invaders conquered Istakhr, the nearby Sassanian capital. As Istakhr fell into decline, Shiraz grew in importance under the Arabs and several local dynasties.

The Buoyed dynasty (933-1062) made it their capital, building mosques, palaces, a library and an extensive city wall. The city was spared destruction by the invading Mongols when its local ruler offered tributes and submission to Genghis Khan. Shiraz was again spared by Tamerlane when, in 1382, the local monarch, Shah Shoja, agreed to submit to the invader. For this reason, the city was named Dar al-Elm, the House of Knowledge, by classical geographers (Movahed, 2014). As early as the 11th century, several hundred thousand people inhabited Shiraz.

After the end of the Arab control over Iran in 1250AD, the Saljugh dynasty took over the power in Iran. The cities at this time grew in their original locations, which had previously been built by the Achaemenian (550-330 BC) and Sassanian (224-651 AD) dynasties. However, these cities had changed socially and physically during the Arab period. They retained their identity based on key monuments, such as the castle, barracks and bazaar that were inherited from the pre-Islamic era. Consequently, the old parts became

productive by having commercial centres. The barracks moved within the walls, which benefitted both the soldiers and the residents, in terms of protection (Falamaki, 2005).

By the 14th century, Shiraz had sixty thousand inhabitants. In 1504, Shiraz was captured by the forces of Ismail, the founder of the Safavid dynasty. Throughout the Safavid Empire (1502–1722), Shiraz remained a provincial capital and Emam Qoli Khan, the governor of Fars under Shah Abbas, constructed many palaces and ornate buildings in the same style as those built in the same period in Isfahan, the capital of the Empire. In the Safavid dynasty, Shiraz had only the minimal productive and cultural services. The old neighbourhood of Shiraz, at this time could maintain both its internal characteristics and cooperation and relationships with other neighbourhoods.

After the fall of the Safavids, Shiraz suffered a period of decline, worsened by the raids of the Afghans and the rebellion of its governor against Nader Shah; the latter sent troops to suppress the revolt. The city was besieged for many months and eventually sacked. At the time of Nader Shah's murder in 1747, most of the historical buildings of the city were damaged or ruined, and its population fell to 50,000, a quarter of that of the 16th century (Tavassoli, 2016). In the 18th century, Shiraz became a leading centre of arts and letters, thanks to the encouragement of its ruler, Karim Khan Zand, and the presence of many Persian scholars and artists. It soon returned to prosperity under Karim Khan Zand, who made it his capital in 1750. Employing more than 12,000 workers, he constructed a royal district with a fortress, many administrative buildings, a mosque and one of the finest covered bazaars in Iran (Figure I.2).

Figure I. 2 Bazaar of Shiraz as seen by Jane Dieulafoy in 1881. (Source: Shiraz Municipality report).

In 1750, Karim Khan Zand intervened to protect the city by establishing a wall and a moat. He restructured the scale of the city by constructing key monuments inside the wall: castle, bazaar, mosque, hamam and caravanserai, connecting them to residential areas in order to improve social connections between the residents and the governor. These interventions can be seen today and are the part of the main structure shaping Shiraz historic core. Because Shiraz was capital during the Zand dynasty, this pattern was also applied to other cities which were under his influence in that era. At this time, Shiraz consisted of a collection of unified localities and great junctions (such as Shah-Cheragh, Zand Bazaar) and several gates and gardens complemented this structural foundation of Shiraz (Movahed, 2014).

Shiraz also maintained a level of prosperity as a result of the continuing importance of the trade route to the Persian Gulf and its governorship was a royal prerogative throughout the Qajar dynasty. Many famous gardens, buildings and residences, built during the nineteenth century, contribute to the current outlook of the city (Movahed, 2014). During the Pahlavi era (1926-1978), the ruler of Iran, Mohammad Reza Shah, started construction of two main routeways, Zand Street and Lotf-Ali-Khan Zand Street, through the historic core, connecting it to Shiraz International Airport and Persepolis.

Crop rotation in the 20th century resulted in reaping greater benefits from the land and releasing much more space for farmers. Simultaneously, deliberate migrations to cities took place in order to further strengthen the residential centres. In 1960, with farmers residing in cities, and an emerging cooperation among traders to increase the economic power of the city, its centre transformed to become a market area. The creation of new conditions to benefit from agricultural facilities in regional levels led to fundamental questions in the ownership of land use and property. However, the awareness of urban residents of improved conditions in agricultural land, despite the farmers' dissatisfaction, resulted in the improvement of living conditions and other facilities such as piped water, electricity, tarmac roads and sewage systems (Kiani & Ali Kamar & Shahverdi. 2014). While the city’s conditions were more favourable for agriculture in the west, most of its people resided on the east side of the valley near the flowing river, a part which, today, is largely uninhabited. The current location of old Shiraz is along the east-west axis of the Shiraz plateau (Kheirabadi, 2000).

The connection in Shiraz between the south and north of Iran, connecting Kazeroon to Isfahan by the construction of several bridges over the dry river in Shiraz along a trade route, shaped the city, so that commercial services expanded along the trade route, with other parts of the city becoming residential (Robubi, 1974). The city of Shiraz has never tried to unify its constituent parts, the residential localities. The structures of the city of Shiraz do not correspond to the typical internal structures of old Iranian cities, as its formation has taken place according to natural, topographical factors (Falamaki, 2004). Despite a rich history, Shiraz has encountered many problems regarding the rehabilitation plans. One of them is its historic core which is regarded to be one of the most problematic urban areas, due to its organic structure and lack of adaptability to modern life. Therefore, it seems that its rehabilitation is a key to all the problems of the city (Falamaki, 2005). The factors involved in the formation of Iranian cities can be divided into two types: the factors at a neighbourhood scale and those pertaining to their buildings. There are some of in Shiraz which have remained until today and have played a crucial role in shaping the historic fabric of Shiraz. These are as follows:

1. The continuity of the urban structure with the ecological-geographical environment.
2. The organic urban formation and the formation according to topography of its elements.
3. The flexibility of architectural-urbanism units through time.
4. The evolution and the harmonious development of different constitutional elements of the foundation of urban structures.

A review of the history of shaping Shiraz's historic core (Falamaki, 2004; Kheirabadi, 2000; Kiani & Ali Kamar & Shahverdi, 2014; Tavassoli, 2016) identified that today, there are some important issues in the realm of the old city of Shiraz which are as follows:

1. Poor urban infrastructure.
2. Lack of educational and care centres, causing social problems such as drug addiction, lack of education and crime.
3. Fundamental functional issues, such as accessibility and permeability.
4. Lack of public awareness about maintenance of communal spaces.
5. Poor aesthetic values due to dilapidated buildings.
6. Lack of active legislation system.
7. Squatters living in vacant, dilapidated buildings.
8. Lack in development plans relating to socio-economic and livelihood factors.

These issues were identified from the analysis of governmental reports from 1970 until recent years, (Arjomand, 2012). Therefore, in the conclusion of Chapter 3, the effect of these factors on the rehabilitation of Shiraz historic core will be discussed. Furthermore, in the old part of the city, the constructed spaces are divided into three major architectural-urbanized units. These units are ancient or historical buildings, residential houses (which make up the main structure of the city), and urban facilities. Nowadays, the balance of the organic life of the city has been disturbed and the change in the formation of the functional-structural space of all three types of architectural-urbanized unit has been insufficient. Therefore, several limited regulations such as preservation orders have been imposed on them from time to time in order to improve their conditions (Tavassoli, 2016).

From the Saffavid period (1502-1722 AD) to the present day, cities cultivated specific cultural and social establishments to react to natural phenomena and enemy invasions, such as the Afghan invasion. They created a latent rich spirituality by applying parallel procedures in urbanism, constructive co-operation in manufacturing and trading, and participation in political, economic, and trade unions. However, from the Qajar era (1794-1925 AD), instead of creating formulae for intervention, uncoordinated approaches are being used. These have deficiencies, because only public officials and local municipalities manage the historic fabric, and the needs of residents are being ignored (Fallahfar, 2005).

These interventions occurred in the physical form and accessibility of various areas within the city and led to some problems with permeability, connectivity and legibility. Disturbances in old neighbourhoods gradually caused the destruction of houses and their foundations. In Shiraz historic core in 2000-2001, Shiraz municipality attempted to improve the quality of neighbourhoods, the safety of residents and the security of urban areas by demolishing houses and historic neighbourhoods. With the demolition of some storage areas used by traders, traders in turn started to demolish their shops to reconstruct them to contain storage space. Such actions are frequently carried out in other historical cities in Iran, such as Isfahan and Tehran, based on development plans that were established individually for those cities.

In Shiraz's historic fabric, an individual development plan has been applied since 1997 to the present, which has resulted in a vast area within Shiraz historic fabric being demolished and replaced, due to the expansion of Shah-Cheragh Mosque and its commercial buildings.

The Shiraz development plan includes a master plan, which determines ways in which built-up areas are being used. The municipality established different land uses for different areas, allocating some areas as residential, some as mixed commercial and residential and other parts as routeways. With reconstruction of urban units, there is an increased population density as buildings are being reconstructed with several storeys, where previously they were single-storey structures. Moreover, the change in land-use and ownership is adjusted on the registered documents (Habibi, 2005).

For various reasons, the old context of Shiraz does not meet the needs of contemporary Iranian life. This mismatch should be considered in both the architectural-urbanized units and at the level of its urban facilities and infrastructures. Reduction in the provision of utilities for residents of the city plays a decisive role in the renovation of Shiraz. The unreliable supply of utilities in the old part of the city has two consequences: citizens' disappointment with their own urbanised environment, and the increasing destruction of the structural context of the city (Falamaki, 2005).

Rehabilitation of historic parts of the city needs to fulfil the requirements of modern culture, while preventing the loss of economic social and cultural wealth, for example, by making the residential areas suitable for modern life, while ensuring that reconstruction of buildings does not change the cultural identity. These old parts still contain great cultural potential and urban economy and seek resolutions derived from the experiences of other countries as well as local town planning and principles of urbanism (Habibi, 2003).

Through the review of the history of Shiraz, and the way that the city is shaped, it can be identified that the history of Shiraz and its structural features restricted its rehabilitation to the central core of the old part; i.e., the residential districts and its central bazaar. The historical buildings should not be considered as isolated entities but should be taken into consideration with their adjoining districts. Above all, supplying utilities to each part is a step toward the development of the old city in harmony with the new parts.

From this description, it is clear that Shiraz holds special historical, social, economic importance within Iran and the social and architectural problems facing the historic centre have similarities with many other historic cities in Iran. In recent times, Shiraz has faced problems in each of these aspects (socio-cultural, economic, physical, residents' livelihood and religion) and it is necessary to find new methods, approaches and techniques of rehabilitation to rectify these complex problems.

In this regard Shiraz is a suitable case study, with its multi-cultural characteristics, architecture from each period of Iranian history and representatives of many different religions. Furthermore, other cities in Iran have been influenced by the urban pattern of Shiraz. Therefore, a study of Shiraz and any recommendations made will be useful for rehabilitation in other Iranian historic cities.

V. Gap in Knowledge

Theoretical knowledge and practice formulated thus far indicate that there is a gap in rehabilitation knowledge to tackle the complex issues linked to historic Iranian cities. As already stated, most Iranian historic cities are located near to trade routes, and therefore, economy is one of the key factors influencing the formation these cities. Also, traditions and culture strongly affected the formation of these cities. The combination of the economic and socio-cultural elements points to the fact that livelihood of the residents is connected to these factors. Therefore, any changes in these factors affects the livelihood of the residents. Livelihood is also connected to several dimensions, such as social capital, economy, and human capital, which are important to consider in the process of rehabilitation. Recent rehabilitation efforts have focused on the social, physical and economic approaches, without consideration for the livelihood of residents of the historic core. Furthermore, as identified through the review of literature about the formation of Iranian cities, Islam played a crucial role in the shaping of Iranian cities from 662AD to the present day. However, many recent interventions in Shiraz have been based upon European experiences of rehabilitation, which do not account for the role of Islam in their interventions.

Consequently, attention to religion alongside the livelihood of the residents and socio-cultural and economic factors, is necessary for rehabilitation of historic cities in Iran. Therefore, it is necessary to define, analyse and understand the key factors that play an important role in the rehabilitation process and rectify the problems linked to defining appropriate theoretical basis, practical methods, approaches and techniques for the rehabilitation of historic cities in Iran. Current approaches are sporadic and lack coordination due to the involvement of many different actors and no overall management system. Furthermore, the improvement of residents' livelihoods needs to be considered, as currently it is not.

The urban rehabilitation systems currently used, mostly developed in western countries, are not always appropriate for use in the Iranian context, due to the morphological, cultural, religious, political and social differences between Islamic and western cities. Therefore, there is a need for an integration of relevant approaches, methods and techniques to create a method of holistic rehabilitation.

VI. Research questions

After consideration of literature about rehabilitation of historic contexts, the main question was identified, and several supplementary questions were identified as follows:

Main question:

How can a rehabilitation approach be developed with consideration towards religious law, politics, economic issues, social issues, urban form and the livelihood of residents in Iranian historic cities?

The following supplementary questions are answered in the chapters of the research:

1. What is urban intervention in historic cities? What are the rehabilitation approaches, methods and techniques?
2. What have been the outcomes of rehabilitation interventions in international experience?
3. How can urban historic fabrics in Iran be rehabilitated with consideration of religious law and the livelihood of residents?
4. What is the most appropriate conceptual framework for proposing a rehabilitation strategy for Iranian historic cities?
5. Which methodology can be used to collect and analyse information for identifying the challenges in the rehabilitation of historic fabric in Iran?
6. How do religion, politics and economics affect the urban form at a macro and micro level?
7. How can a rehabilitation approach improve both the socio-cultural environment and physical form at a macro and micro level?
8. What will be the best urban design approach for rehabilitation of Shiraz historic fabric?
9. How can a rehabilitation approach in Shiraz be applied to other Iranian historic cities?

This thesis considers some of these experiences in the field of rehabilitation of historic cities in different countries and will identify which aspects have been shared generally in these interventions. It also uses them to determine appropriate methods and approaches to the rehabilitation of the historic fabric of Shiraz city.

VII. Aim and Objectives

The aim of this research is to develop an urban design method to establish new principles for rehabilitation of historic cities in Iran.

To achieve this aim, a series of five specific research objectives have been identified and are used to steer this research.

1. To identify approaches, methods and techniques of rehabilitation that are used in various historic cities around the world.
2. To develop an integrated conceptual framework, for analysing and understanding the key challenges that are currently facing the historic districts of Iranian cities and to make a connection with the key elements of livelihood theory to support the rehabilitation of Shiraz historic fabric.
3. To use this integrated conceptual framework for developing a methodology for collecting data for analysing the current challenges that face the historic districts of Shiraz.
4. To use the integrated conceptual framework and methodology for developing and evaluating the key characteristics of the Macro-scale and Micro-scale to propose recommendations for rehabilitating the historic city of Shiraz.
5. To use the findings to propose methods and techniques for rehabilitating the historic districts of Shiraz.

The relationship between research questions, aim and objectives with different chapters in this research is presented in figure I.3.

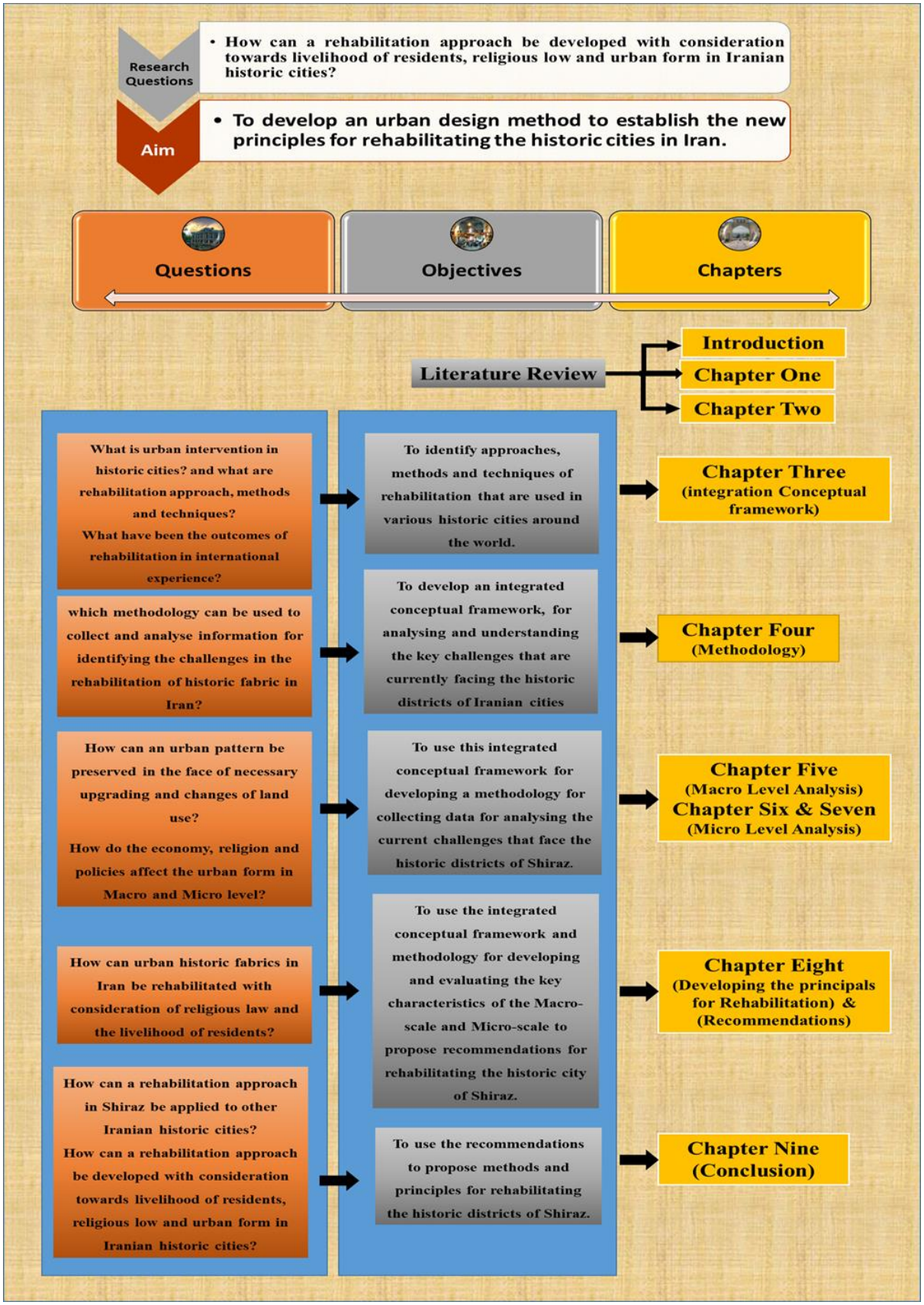

Figure I. 3 Relationship between Research Questions, Aim and Objectives and chapters.

VIII. Research strategy

This research uses a case study approach because it gives an in-depth understanding of the religious, political, economic, socio-cultural and physical issues facing Iranian historic cities in the context of rehabilitation. Ethnography is useful for this research, since this research deals with socio-culture, economy, religion, politics, migration, tradition, livelihood and urban morphology (Bryman, 2008).

A deductive approach is used in combination with urban design theory and livelihood theory. Following a literature review of rehabilitation experiences in European countries, Islamic countries and in Iran, a conceptual framework is drawn from which to investigate the key factors affecting rehabilitation in Shiraz historic core (Bryman, 2008).

An interpretivist approach is used and is appropriate for this research because the recommendations need to be made in light of the religious, political, economic, socio-cultural and physical elements of Shiraz historic core.

Data collection strategies combine both quantitative and qualitative methods, since qualitative data can lead the researcher to identify practical solutions for the rehabilitation of Shiraz historic core. Quantitative data allows the opinions and characteristics of individual people to be considered in the process of rehabilitation. Data are collected at both macro and micro-level to understand the actions of rehabilitation in the city as a whole, as well as at neighbourhood level.

The data collected at macro-level are analysed by GIS, SWOB analysis and Space Syntax. The data collected at micro-level are analysed by GIS, SPSS, SWOB analysis and RADAR analysis. These methods of analysis were selected because they are appropriate for quantitative and qualitative data and can provide a better understanding of the characteristics of Shiraz historic core.

The outcome of the data analysis, which covers the key elements of rehabilitation, which are religion, politics, economy, socio-cultural factors and physical form will help this research to present the practical recommendations for rehabilitation of Shiraz historic core and can be expanded to other historic cities in Iran. These practical recommendations provide an answer to the main research question.

Contributions to theoretical and practical knowledge will be established in relation to a new method of rehabilitation of historic Islamic cities. The results will be used to develop the final recommendations of the research. The final outcome of the PhD stage established a set of principles in relation to urban design method for rehabilitation of historic cities in Iran. Therefore, the following stage presents the structure of this study and the interconnection of each chapter.

IX. Structure of the Thesis

Shiraz is a suitable case study because the history of Shiraz shows that in pre-Islamic and Islamic eras it was in the centre of political, economic and social attention for the rulers of various dynasties, who chose this city as the capital of their empire. Also, the geo-political location of this city, which was part of the silk trade route, and the stronghold of the military in different eras, made this city a strong candidate for rehabilitation of its historic fabric. Therefore, this research is focused on the rehabilitation of the historical part of Shiraz. By studying Shiraz, the study aims to identify and assess the key challenges of historic urban districts in Iranian ancient cities to establish new urban design methods and principles for rehabilitation.

To meet each objective, the research is presented in nine chapters that examine the content and methods of data collection and data analysis. Each chapter produces results which can be used for further research in subsequent chapters.

Chapter 1 is concerned with the dilapidation issue in historical contexts and outlines approaches to rehabilitation. In this chapter, the following topics will be discussed separately:

- Analysis of different types of dilapidation in historic cities.
- Analysis and definition of intervention approach, methods and techniques to rehabilitate the historical contexts.
- Analysis and definition of concepts of urban rehabilitation.
- Evaluation of various intervention methods for urban rehabilitation.

Chapter 2 analyses international experiences in urban rehabilitation methods in Bath, UK; Barcelona, Spain; and Cairo, Egypt, as an Islamic city example, with a brief review of rehabilitation plans in some other Islamic cities. Analysis of international experiences will help this study to identify the most compatible methods and techniques of rehabilitation for Shiraz's historic fabric and to establish working definitions.

In all the above it reviews the role of factors such as community, economy and religion as well as other factors such as morphology, typology and climatic conditions in each neighbourhood. This research will present analysis previously carried out, and it will also reveal the problems that Iranian cities face regarding rehabilitation, with reference to Shiraz.

Chapter 3 presents an integrated conceptual framework for identifying the key challenges that currently face historic districts of Iranian cities, to limit the scope of inquiry. This part will focus particularly, though not exclusively, on the city of Shiraz. The integrated conceptual framework will be developed by linking reviews of literature from three key fields. Firstly, the chapter is concerned with the social, political and religious history of Iranian urban settlements, with particular reference to Shiraz, in order to clarify how the development of historic areas can be understood in relation to wider cultural values. Secondly, literature on the current power structures of Iran, again with particular reference to Shiraz, is reviewed in order to understand the economic and political pressures they currently exert on historic urban areas. Thirdly, literature about the theory of urban morphology and livelihood theory is utilised in order to understand how to build explanatory links between cultural values, economic and political pressures, and the physical form of the historic urban fabric itself.

The result of this investigation is an integrated conceptual framework for rehabilitation, presented at the end of Chapter 3.

Chapter 4 develops a methodology for collecting and analysing relevant data at macro-level and micro-level, emphasising the important role of the five elements of the religious, political, economic, socio-cultural aspects and physical form. This chapter examines five main elements which affect the historical fabric of Iranian cities, with approaches to analysing qualitative and quantitative methods. This chapter provides a method for examining the historical process of the formation of historic cities, with approaches to collecting data from residents and urban actors. The methodology will be used in chapters 5, 6 and 7.

Chapter 5: Following the integrated conceptual framework and methodology chapter, the analysis of Shiraz historic core on a macro-level is presented as follows:

- Analysis of the Shiraz historic fabric in terms of religion.
- Analysis of the Shiraz historic fabric in terms of politics.
- Analysis of the Shiraz historic fabric in terms of economy.
- Analysis of the Shiraz historic fabric in terms of socio-cultural aspects.
- Analysis of the physical dimensions of the Shiraz historic fabric.

The outcome of these analyses, helps the research to understand the issues facing the historic core as a whole. This leads the research to identify two sub-case studies which help to understand the issues facing the historic core at micro-level which are analysed in Chapters 6 and 7.

Chapter 6 and 7: The results and recommendations gained from Chapter 5 lead the research to examine the key challenges on a micro-level. In this investigation two sub-case studies are selected to have the best potential for examining key challenges in greater depth. The subjects presented in this chapter, are as follows:

- Analysis of two neighbourhoods in terms of religion
- Analysis of two neighbourhoods in terms of policies
- Analysis of two neighbourhoods in terms of economy
- Analysis of two neighbourhoods in socio-cultural terms
- Analysis of the physical dimensions of two neighbourhoods

The outcome of these analyses will help this research to present an in-depth understanding of the issues facing the historic core and lead this research to prepare appropriate recommendations for rehabilitation which are presented in Chapter 8.

Chapter 8 presents the outcomes of the analyses in Chapters 5, 6 and 7, which relates to the assessment of the proposal and it also uses these results to develop urban design approaches for rehabilitating the historic core of the city of Shiraz. Therefore, the aim of this chapter is to present the practical recommendations for rehabilitating Shiraz's historic fabric, with attention given to the individual characteristics of each city.

Finally, the concluding chapter proposes a new rehabilitation method relevant to Shiraz and other Iranian historic cities and provides final recommendations.

Conclusion

The problems faced by Iranian historic cities face were identified such as socio-economic and livelihood issues; urban form, urban structures and urban functions; lack of active legislation system, land ownership, and Islamic law for urban development. All these factors affect the urban formation, urban activities and livelihood of residents. Therefore, to find solutions for these problems, it is necessary to identify different approaches, methods, and techniques in relation to rehabilitation of historic cities by identifying the key factors of rehabilitation and the interrelationships between their components. This research also presents in the following chapters the role of international charters and international and national experiences in terms of rehabilitation process in different countries. The outcome will help this research to identify suitable rehabilitation methods and techniques for Iranian historic cities with attention to the characteristics of Iranian historic fabric. Figure I.3, presents the interrelationships between different components of this research.

Chapter One: Rehabilitation approaches, methods and techniques

Introduction

As stated in the conclusion of the previous chapter, the starting point of this study addresses the rehabilitation of historical contexts of ancient cities, which have so far received little attention in urban development policies in Iran. The aim of this chapter is to identify approaches, methods and techniques of rehabilitation from a range of current literature. The chapter addresses the research question, "What is urban intervention in historic cities? and what are the rehabilitation approaches, methods and techniques?" In order to answer these questions, this research designed a process to examine different cities in European and Islamic countries.

Figure 1.1 shows how this research reviews the information collected regarding rehabilitation from European and Islamic cities, and how three international examples were chosen to complement the theoretical studies. The research categorised historic cities into three categories: European cities, such as Barcelona, Paris and Berlin; Islamic cities such as Istanbul, Cairo, Baku, Marrakesh and Tunis; British cities such as Bath, Oxford and Cambridge. These cities were investigated to identify the approaches, methods and techniques that have been applied, based on internal factors and external factors of rehabilitation. Internal factors include income and development, education and health systems and physical formation. External factors include economic, socio-cultural, environmental and political factors. The outcome of this analysis led this research to choose three key examples of rehabilitation: in Europe, Barcelona; the Islamic city of Cairo, and in England, Bath , all of which will be analysed in Chapter 2.

Over the course of its history, Iran acted as a bridge between the civilizations of East and West. Over many eras, Iran has witnessed the emergence of different governments and religions that have had a significant impact on the culture and civilisation of people in this land, and a profound effect on the structure and formation of cities and urban spaces in this vast country (Kheirabadi, 2000). Hence, it is useful to examine the experiences of rehabilitation of historic urban contexts in European and Islamic countries in order to learn from their experience, which could be relevant to Iranian cities.

The need for urban rehabilitation is discussed with reference to various rehabilitation approaches and methods in European and Islamic countries and in England (Figure 1.1).

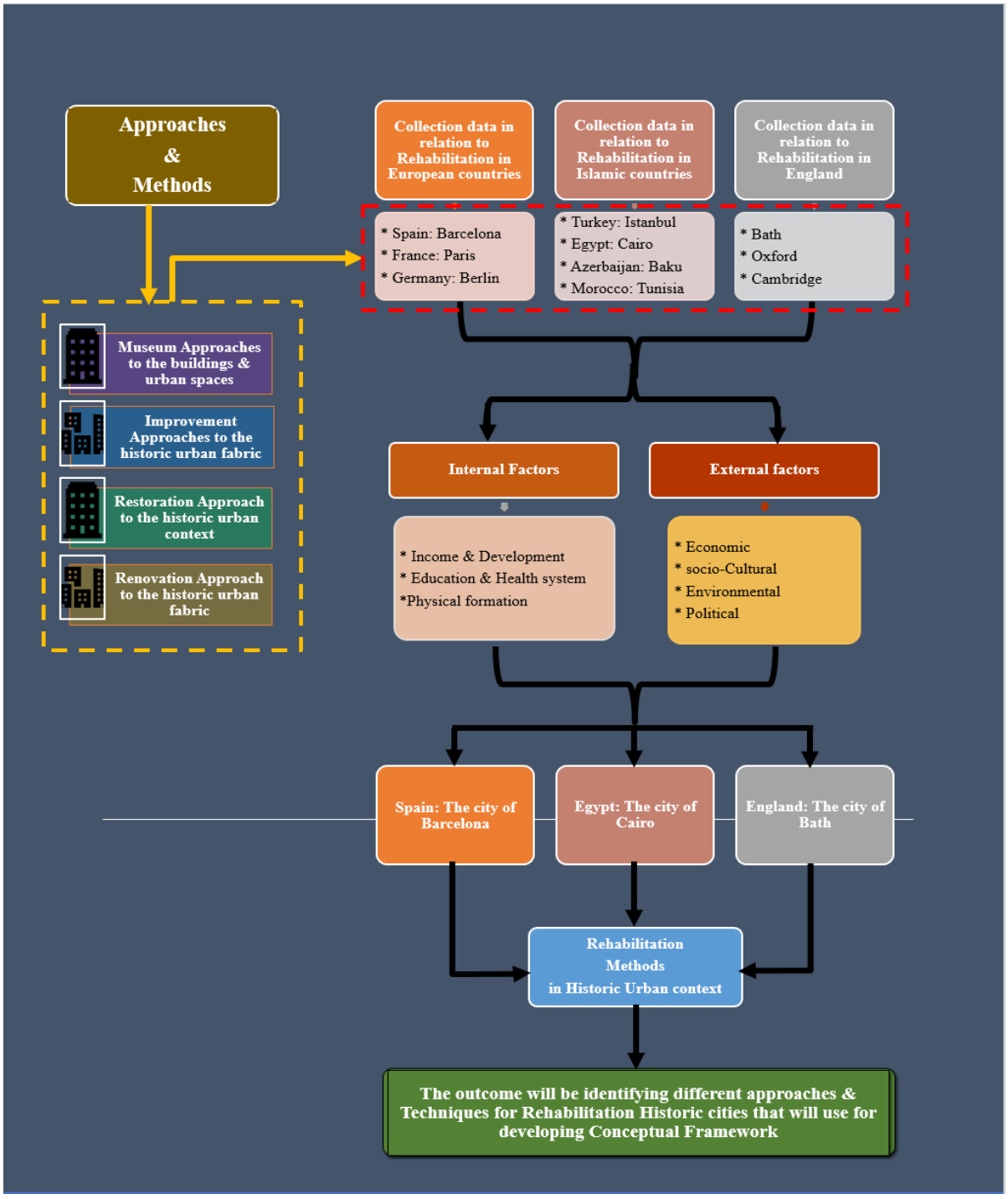

Figure 1. 1 The process of choosing examples to study of international rehabilitation experiences, (Source: Author).

1.1 Development of the rehabilitation approach

Until the 1940s, few countries in the world appreciated the value of their older cities. In Europe, conservation was limited to a concern for historical buildings of special importance, usually castles, palaces, churches, museum and other significant public buildings. Attention was focused on individual monuments, considered in isolation from their urban surroundings. It was the Second World War and its mass destruction of the historic cities in Europe that provided the stimulus for a more serious consideration of older urban areas. The rebuilding across Western Europe in the 1950s and 1960s, led to a much greater awareness of the unique character of these older areas and the need to treat them sensitively and constructively (Steinberg, 1996; Appleyard, 1979).

At the same time, in Europe and in North America, there was a growing criticism of the 'modern' school of architecture and the 'bulldozer' school of planning. There began to be popular resistance to the standardised 'high-rise' housing solutions, which were imposed in the name of modernisation. People who had been shifted to new housing estates generally compared them unfavourably to their previous lives in older housing areas of the city core. The 'bulldozer' approach to urban renewal generated great dissatisfaction, as whole areas were indiscriminately destroyed and their social communities thoughtlessly ruined. Professionals in the housing and planning field gradually retreated from this 'bulldozer' approach as the negative consequences became more well-documented and publicized. They started to formulate new concepts and approaches, which slowly won acceptance from politicians and bureaucrats (Rodwell, 2003). From these various experiences, the idea of urban rehabilitation has emerged. This does not mean simply the passive protection of individual buildings of historic significance; nor does it mean the wholesale preservation of everything that is old. Instead, it means the creative use and re-use of older quarters of the city, taken as a whole focusing on both built form as well as socio-economic and cultural components (Abu- Lughod, 1987).

Where possible, old buildings are repaired and modernized, to facilitate their continued use, especially as housing. This often includes upgrading of infrastructure services (water, sewers, drainage, roads, etc.), but on a modest scale, allowing the preservation of the existing urban pattern and fabric (Kocabas, 2006). Interestingly, experience in many countries has shown that it can be easier and less costly to restore and modernise old buildings than was originally expected.

In contrast, the cost of demolition and replacement by new buildings has almost always turned out to be more expensive than expected. Naturally, many mistakes were made in the early years of rehabilitation efforts; some projects were failures, some were far too expensive and some succeeded at the expense of the original residents. Nonetheless, the trend of the experience is favourable, leading to a steadily growing support in countries throughout Europe and elsewhere (Gospodini, 2002).

Although the concept of rehabilitation has seen increasing support in most industrialised countries, a very different situation exists in developing countries. The concept is still unfamiliar in most places. Intellectually it remains limited to heritage societies, a small number of foreign-trained local professionals, and a few external advisors. Politically, it has not yet generated significant support. The approach, methods and techniques shown in Table I.1 lead this research to understand better how we can establish a new method for rehabilitating Iranian historic cities with particular reference to Shiraz historic core.

1.1.1 The comparison of methods of rehabilitation in European and Islamic countries

Each historic city has unique characteristics which include social, cultural, economic factors, physical form and traditions. Hence, they required their own specific methods and techniques for rehabilitation. As the approach to rehabilitation in different countries follows different patterns and policies, it is necessary for this research to identify these patterns in order to evaluate which methods and techniques may be useful in the rehabilitation of historic cities in Iran. A review of current literature provides the overall summary of urban rehabilitation practices as shown in Table I.1 in the previous chapter. This summary will be expanded on throughout this chapter.

Through comparison of the rehabilitation process in Islamic and European cities, cultural heritage can be defined as monuments and artefacts which have contributed to a particular culture and are inherited from ancestors (Vecco, 2010). In other words, cultural values are influenced by the remaining traces of the past, such as historic buildings and traditions; a building may be historic, but if it lacks cultural value, it is not considered to be an important monument (Soltani, 2005). This understanding of heritage often excludes historic residential areas and city centres which equally represent urban heritage. There may even be non-tangible elements of urban heritage, such as customs and beliefs, which play a role for the use of space and the built environment. However, these non-tangible-elements are rarely considered when rehabilitating urban areas (Steinberg, 1996).

The built environment and built expressions of culture, economic and religious powers as part of the national heritage deserve to be included in this perspective. Similarly, urban heritage should attain the status that is not only limited to cultural perspectives but could become an economic asset with strong potential for economic exploitation. This could be through tourism, for cultural-based image-building of local economic development and the promotion of corporate enterprises (Orbasli, 2002).

Cesare Brandi believed that conservation and restoration were intrinsically intertwined, and that conservation needs to be inventive. He can be considered one of the founders of modern conservation, inspiring several international conservation charters such as the Athens Charter for the Restoration of Historic Monuments of 1931, the Venice Charter of 1964, and the Washington Charter of 1987 (Ersen, 2010).

One series of such charters helped to define and formulate the concept of area conservation. This led to the recognition of an entire historic area, as opposed to individual buildings, being recognised as of cultural importance in Article 1 of the Venice Charter (1964). Similarly, Consideration 2 of the Amsterdam Declaration (1975) and Article 1 of the Petropolis Charter (1987) recognised historic quarters as integral parts of the whole city. Likewise, the relationship between historic areas and the towns in which they lie was emphasised in Article 5 of the Washington Charter (1987).

Topics and issues about urban restoration and conservation started in the 19th century in industrial cities of developed countries, and also entered developing countries with the modernist movement (Kiani, 2014).

However, despite these countries having a rich heritage of architecture and urban spaces, they attempted to follow patterns which were not specifically designed to the individual cases to achieve the degree of development and prosperity of the industrialised world, with unreceptive reactions to eliminate effects of their civilization and culture. Promoting cultural and artistic movements in recent decades in the postmodern style was severely criticised, as was the preservation of historical contexts from like-minded groups in the community, which had to comply with the demands of local residents and government. In this regard, reference to successful experiences in European countries could be a good starting point for urban planners and urban designers in developing countries, to formulate principles and objectives of rehabilitating, preserving, restoring and revitalizing historical-cultural contexts that are mostly ancient (Falamaki, 2005).

These rules have been further developed as they have been applied (Benhamou, 1996). In England in 1877, an organization for the preservation of old and historic buildings was established, the Society for the Protection of Ancient Buildings (SPAB), which wrote a series of principles for the protection and revitalization of valued urban fabrics. Today, these historic-cultural contexts are seen as local cultural wealth (Lehmann, 2010).

Social and economic developments of the twentieth century affected some historical contexts in ways that caused problems which were not purely physical, but where the function of an area was mismatched with its structure. Therefore, measures named in the specialised texts on rehabilitation should be taken to solve these problems. Shiraz Bazaar is a good example of a building with functional problems. Unfortunately, the necessary actions were not taken in time. Commercial systems relocated from the Bazaars and became shops along streets. Consequently, the Bazaars lost their value (Sarvestani, Ibrahim & Kanaroglou, 2011, P 320-329).

This research begins with a general approach to the rehabilitation of historical and cultural contexts and derives general principles and strategies for historical and cultural contexts with specific relevance to the historical core of Shiraz city.

However, due to the specific nature of the research, it is necessary to study methods and theories which are related to rehabilitation and to study examples of similar physical, functional, historical and cultural contexts which fall into the following categories:

- **A.** Those projects and initiatives that have been successfully implemented in historic cities.
- **B.** Those historical and cultural contexts that generally have both residential and cultural functions and which recently used rehabilitation strategies for protection and restoration of historic areas.

Deterioration affects all phenomena, and nothing escapes from it. Buildings, urban contexts and, more generally, the cities themselves, are no exception. Moreover, over time, in cities that have become run down, tissues are divided into two categories (Sirisrisak & Alagawa, 2007):

First: those rich in urban heritage.

Second: those with little or no urban heritage.

Urban heritage can be defined as the historical monuments, buildings, open spaces and artefacts which have outstanding significance in art, history or science (Labadi and Logan, 2015; www.icomos.org, 2016). The worn-out tissues of urban heritage, despite being physically run-down, are composed of a series of complex spaces and facilities, or a combination of them, which change the value of the city. How the identification and protection of these elements will lead to the use of heritage and the identity role of each of them as a part of their intervention is considered further.

In many ancient cities, buildings with historical and cultural value are located in the old parts of urban areas. Deterioration is one of the most significant problems in urban spaces, which causes a lack of order, imbalance and urban fabric being not fit for purpose. Urban fabric is manifested as a range of partnerships, formed with different morphologies during different stages of urban development within the city or outside it, as part of continuing urban development. This range can be made up of one or more elements from buildings, roads, urban collection, urban spaces and urban facilities (Moudon, 1997; Sharifi & Murayama, 2013).

In another definition, worn texture refers to urban areas that have experienced physical deterioration, lack of adequate road access, utilities, and municipal services and have vulnerable infrastructures; these areas also have a low value in terms of location, environmental quality and economy (Lotfi, Habibi & Koohsari, 2007). These problems are evident in the reduced economic values in their environments. When a city, for whatever reason, falls into recession, there is a link to exhaustion of the urban fabric (Pourjafar, 2009). Since there is a reduction in money raised by taxes, due to lower incomes there is therefore a shortage in funds available for repairing the urban environment. As unemployment can cause despair in the youth, they may feel frustrated, which could lead to vandalism in their local area. Once an area begins to fall into disrepair, the respect of the residents for the urban fabric lowers, and consequently less care is taken to repair and maintain the urban fabric and the desire of the residents to migrate increases (Hall & Pfeiffer, 2013). Therefore, a negative cycle of urban exhaustion occurs and a new strategy for rehabilitation is required.

1.2 Types of deterioration and problems

Habibi and Maghsudi (2005) stated that deterioration is one of the major problems related to urban space. This problem can cause imbalance, deformation, disproportionateness and inadaptability in historic fabric. The degrees of complexity of the inner structure of the neighbourhoods are other factors mentioned by Hillier and Vaughan (2007). The deterioration of urban tissues is divided into two types: simple and complex. In simple deterioration, either the urban fabric or urban activities suffer from exhaustion. However, in complex deterioration, urban fabrics and activities are diminished simultaneously (Morris, 2013). Problems of deterioration in urban fabric and urban activities can be solved in two ways: retention and revival. Retention consists of practical activities carried out gradually and continuously in cities in order to restore urban tissues. This method tries to eliminate or reduce the effects of deterioration on activities in the city, to prevent the erosion of the urban fabric. Retention is a method that can be part of rehabilitation measures (Habibi, 2003). Since there is such a prevalence of deterioration, there is therefore a need for intervention in the historic fabric and a rehabilitation strategy needs to recognise this need.

Those parts of historical contexts that have lost their previous functions or have not yet gained new, fixed functions, have become examples of functional deterioration. Nevertheless, in Shiraz historic core in the 20th century, wealthy residents began to leave the residential areas, and by the middle of 20th century, these areas began to be inhabited by immigrants. This was due to the poor physical conditions of those areas, which made them affordable and in turn led to poor people living in these tissues. Hence, the actions that should have made a fundamental change to the historic districts (before the displacement of social groups), and guaranteed the settlement of different economic groups, were the renovation and restorative approaches. However, unfortunately, in this regard the actions were not effective within Shiraz Historic fabric (Nasab, Naz & Anjum, 2014).

Considering all the above, the problems can be divided into three main groups which are related to historical contexts:

- Socio-economic problems
- Problems with urban form and infrastructure
- Problems with policies and urban development

1.3 Methods and techniques of intervention in historical contexts

As a summary of the literature reviewed, Table I.1 shows three different rehabilitation methods which can be applied to historic cities around the world. Each of those methods has different approaches for rehabilitating historic cities based on the unique characteristics of each city and key factors that affect the historic fabric in these cities. Therefore, the interrelationships between different approaches, methods and techniques can be useful for identifying an appropriate framework for the rehabilitation of Shiraz.

While deterioration occurs in the historic urban fabric, there are also interventions that are carried out in order to counteract the deterioration. Costa (2006) writes that there are different definitions for the methods of intervention in historical contexts, but it is difficult to identify the implications and differences between them. Hence, due to the complexity of the problems in these contexts, it is necessary to intervene in all aspects and to use both old and new methods of rehabilitation in these contexts. Thus, consideration of the combined limits for these methods is difficult and perhaps impossible. However, the purpose of this analysis is to identify both the overall measures taken and the major problems that are found in the tissues, with different methods for each one (Pawson, Greenhalgh, Harvey & Walshe, 2005).

For this research, rehabilitation is the main approach consisting of three main methods, which in turn consist of various techniques. These are defined as follows.

Rehabilitation – an umbrella term, which involves various methods, such as, renewal, revitalisation and regeneration. It is an approach for whole areas, districts and cities, not individual buildings, but recognises that it will indirectly affect the individual buildings and monuments too. It deals with the social aspect of the historic fabric as well as the built form. It recognises that the area surrounding historic monuments are as important as the monuments themselves (Sutton and Fahmi, 2002).

Renewal – is a method which focuses on buildings, landmark monuments and cultural heritage. It focuses on individual buildings or to historic districts rather than the whole urban fabric (Sutton and Fahmi, 2002). It involves reconstruction, adaptive re-use, conversion, conservation, restoration and repair techniques (Zheng, Shen and Wang, 2014). Its purpose is not only demolition and rebuilding, but also to repair, renew and update the urban fabric (Sharifi & Murayama, 2013)

Revitalisation – is a method which includes not only the physical urban fabric but also the social structure. This method maintains cultural heritage, identity and traditions (Ramlee, Omar, Yunus, & Samadi, 2015). Techniques associated with revitalisation include protection, consolidation, recuperation and preservation.

Regeneration – is defined by Brantenberg as including spatial, social, financial, organisational and legal aspects, and can have many different scales – from country-wide to town-size, to individual buildings (Karsten, 2015). It has a physical, social and economic focus and the aim is to reverse decline in deprived neighbourhoods by attracting economic investment and raising employment rates (Silverman, Patterson, Yin and Wu, 2015; Couch, Sykes and Boerstinghaus, 2011; Zheng, Sheng and Wang, 2013). This is a means of renewal and future-proofing, to include the new and to update and create new spaces that will maintain the features of the main urban fabric and old physical activities (Quinones, 1993). Techniques involved in regeneration include reintroducing investment to an area and increasing employment.

1.4 Techniques involved in rehabilitation

Within the three main methods there are various techniques, as outlined in Table I.1. Some of the main techniques are defined below.

Reconstruction is defined as "returning damaged buildings to a known earlier state by the introduction of new materials" (ICOMOS Burra Charter, 2013). Problems with this method may include a lack of knowledge about the previous state of the building, when little evidence survives. This may cause questions of accuracy to be raised (In Heritage BC).

According to Bullen and Love (2011) **adaptive re-use**, is the re-use of a building with a different purpose from that for which it was originally constructed. This can help to satisfy the need for new buildings and can also have socio-economic and cultural benefits (Ijla and Broström, 2015; Rudlin and Falk, 1999; Force, 1999).

Restructuring (a technique from the renewal method) consists of the following activities:

- Demolition
- Clearance
- Rebuilding

Remodelling: (an action from the revitalisation method) The assessment of building patterns and urban actions that are the cause for creating new structures for urban spaces with concessions to the old patterns that can occur without regard for the historical backgrounds (Zeayter & Mansour, 2017).

Reintegration: (an action from the revitalisation method) This is where some parts of the city have become disconnected and lost their interconnectivity with other parts of the city, and rehabilitation aims to relink these parts by the configuration and organization of the spaces inside the tissues. Therefore, integration and unity between different parts of the urban tissues would be achieved by the process of revitalisation (Yildirim, 2012).

Restatement: (an action from the revitalisation method) is a different expression of the situation, again by using the old concepts in new formats. Therefore, it is updating concepts that have effects on the organisation of urban spaces. It should be noted that it is not usually possible to identify definitive boundaries between the different types of action that are recommended in historical contexts (Rodwell, 2008). Many of these methods and techniques overlap, which makes it difficult to distinguish them from each other. Therefore, in this regard, the United Kingdom tried to introduce all these activities that were carried out after the 1980s, under the title of 'Regeneration' (Edizel, 2014).

1.4.1 Specific aims in rehabilitation in European cities

Within the approach, methods and techniques discussed above, in European cities an approach is often designed for a particular place with a specific overall aim. These include:

1.4.2 The safeguarding of health

Rehabilitation with this aim includes sets of qualitative or quantitative measures to improve environmental conditions. Projects such as furnishing and decorating public spaces, eliminating inefficient urban nodes, providing clean drinking water for residents, creating urban green spaces etc., are measures included in this category. On the other hand, the main disadvantage of this method is the lack of conformity between the old tissues and new conditions of urban life. The Haussmann actions in the city of Paris were a series of restoration measures of urban renewal, as also were the urban conservation measures applied in Poland (www.luda-project.net, 2005), where they are classic examples of this method (Feilden, 2007; Egan et al, 2010).

1.4.3 Protection of historic fabric and monuments

Obviously, this rehabilitation with this theme includes a series of measures to preserve, protect and improve the aesthetic environment in the urban fabric. The main goals of this approach are to make the best use of old buildings, to break the links between the old tissues and the urban fabric as well as the surrounding new areas, and to eliminate the unsanitary and poor neighbourhoods. Also, the construction of open spaces in the old neighbourhoods, somehow gives the city a new profile (Heath, Oc & Tiesdell, 2013).

1.4.4 Local intervention in historic fabric

The main objective of rehabilitation with this aim is to strengthen the economy and reduce corrosive elements in the urban tissues. Therefore, the basic requirements and needs of the residents, in order to accompany the restoration of the city and also to establish a direct relationship with city officials, will be of primary importance. There will also be attention to local intervention, improvement of the environment, promotion of architectural spaces and the dominance of a unique architectural style specific to the area of the urban fabric. So, this way of thinking focuses on creating spaces that facilitates social interactions. It also attempts to create harmony between the fabric and functions in urban areas. Frequently, urban design projects are placed in this built form category, so that they can lead to executive and realistic communication with residents. This method has more supporters in developed countries, but they would not be helpful in developing countries, due to poor co-operation between agencies at local level and limited funding which prevents rehabilitation of entire areas (Simpson & Chapman, 1999; Al-hagla, 2010).

1.4.5 Comprehensive restoration of a city

The main purpose of rehabilitation in comprehensive restoration is to consider problems as they arise in older cities and generally, intervention from local residents is not considered, although an exception to this is the city of Bologna, Italy (De Pieri and Scrivano, 2004). In this method, new areas are built to blend in with existing surrounding districts. However, protection methods are more focused on urban fabrics than on activities within the city (Alison & Peters, 2010). However, urban reconstruction operates in exactly the opposite way and focuses on major activities. Therefore, methods based on intervention give attention to urban fabrics and urban activities inside the tissues (Yisan & Lin, 2003).

Nevertheless, these procedures should pay attention to the conservation of the contexts as a whole. Thus, it should give specific attention to urban textures in ancient cities. According to the above discussions, this research considers attempts at the rehabilitation of old inner-city areas and historical monuments in the cities of the developing world, which have so far received very little attention in urban development policy.

1.5 Aspects of improvement related to urban rehabilitation

Realistically, no one argues for total preservation of everything that is old in the city (Abu- Lughod, 1987). Equally, few would quarrel with attempts to improve sanitation and water supply, reduce overcrowding, or otherwise improve the living conditions in older housing areas. Such improvements do provide a more satisfactory environment. But a better environment also implies satisfaction of social and cultural life for those who make use of the environmental resources. It is the human inhabitants who create and constitute the socio-cultural and economic systems that give life to the physical environment. The focus of rehabilitation of historical centres, therefore, has to be on whole areas, not just individual buildings, on social communities, not just the physical environment. These older housing areas, typically in the inner parts of the city, are often home to lower income families and they have physical, social, economic and cultural values different from and beyond the perceptions of bureaucrats or planners (Webber, 2010).

Advocates of rehabilitation policies emphasise the importance of a comprehensive and integrated approach to planning for older areas, and especially the need to consider rehabilitation policies addressing entire cities. Of course, particular buildings of special historic and/or architectural interest should be preserved as part of the overall scheme. But the real focus is on the activities and use of the buildings taken as a whole and the need to upgrade selectively (Cantacuzino, 1987). This rehabilitation approach raises a variety of crucial issues and questions (Figure 1.2)

Questions	
Cultural	To what extent can the rehabilitation of historic housing areas and monuments contribute to the strengthening of indigenous cultural traditions and forms? What is the role of historic city centres and of monuments, their physical characteristics and their social life in the local (or national) culture? Can historic monuments and city centres become areas of special touristic interest?
Political	How can political support be generated and maintained? How can a national policy in support of rehabilitation of urban heritage be established? How can the affected population participate in the formulation and execution of rehabilitation schemes?
Economic	How can urban rehabilitation be financed? What mixture of private and public resources, i.e. public-private partnerships, should be used? How can older land use and activities compete with new ones? What happens when land values and/or taxes increase? How can the contribution of the older area of the urban economy be consolidated? What economic role could tourism play in this context?
Social	How can the poor, who generally comprise a majority of those living in the historic housing areas, participate effectively in the rehabilitation process? How can the community of low-income residents be retained in the face of changing land uses and values? (Or how can they be supported when relocation is unavoidable?) How can low-income residents be protected from the impact of "gentrification"?
Urban form	How can the urban pattern and tissues of historic city areas be preserved in the face of necessary upgrading and changes of land use? Can the historic quality of the mixed-use environment be adapted to modern conditions?

Figure 1. 2 Key questions raised by rehabilitation, (Source: Author).

To answer some of these questions, reference will be made to the urban heritage experiences of a number of cities, which will be analysed in Chapter 2. However, at this stage, the factors related to the questions above in order to identify different aspects of rehabilitation of historic cities will be presented and explained. All of those factors have relation to the people and their needs. Hence, the livelihood of residents plays the key role in political, cultural, social, economic and morphological aspects (Blaikie, Davis & Wisner, 2014). On the other hand, different aspects which affect the rehabilitation process of historical cities are as follows:

A. Political aspects

Political support for urban rehabilitation is certainly crucial and a prerequisite for any substantial urban planner. However, the experiences of the majority of cities are not encouraging in this respect. Too many instances exist where the political commitment is lacking or very difficult to obtain, and even the concerted efforts of international and national heritage organizations have not been able to generate such support (Hurley, 2010; Wang & Zeng, 2010).

Historical conflicts have meant that there have been influxes of migrants and refugees settling around landmark and heritage sites, who may have little sense of connection to the local heritage. Rehabilitation and development must be approached in a more complex and multidisciplinary/transdisciplinary way so that the competing goals of conserving heritage value while integrating social and economic development are resolved. Thus, it can be concluded that cities rehabilitate their economies by promoting intangible heritage as a tourist attraction for generating income to the area and reintroducing former skills previously associated with the particular city to generate livelihoods for residents such as pottery, handicrafts or coppersmith (Hosagrahar, Soule, Girad and Potts, 2016).

B. Cultural aspects

A broad definition of culture is: identity, relationships, beliefs and values, art and crafts, customs, language and interactions (Cahn, 2006; Fisk, 2007). These have been highlighted very prominently by conservationists and campaigners, international organizations (UNESCO, ICOMOS, ICCROM, and Aga Khan Foundation for Architecture) as well as bi-lateral institutions (cultural and archaeological institutes). Recently, with the concept of more tourism-orientated marketing of cities, culture has been accepted as a means to promote tourism and even the local investment climate or ambience of cities has changed. Thus, culture is no longer a pure end in itself, but a means for local economic promotion (or as the critiques of this approach brand it for a sell-out of culture), (Duxbury & Campbell, 2011). In this regard, the livelihood of residents is the set of assets (financial, social, human, political and physical) within a cycle of access to resources, determined by their ability to meet the basic needs of the people (Deacon, 2012).

C. Social aspects

Social aspects manifest themselves in particular through the presence of the poor, who (sometimes as recent immigrants) have become residents in very crowded historic housing, usually suffering from the impacts of sub-division and over-utilization of outdated services. In addition, many well-to-do owners of historic buildings have moved elsewhere and have lost interest in the upkeep of their properties, as can be seen in many countries (Larkham, 2002). The income situation of the poor and the lack of interest of absentee landlords, who earn very little income from the low rents being paid by the occupants of their old housing, have strongly contributed to the decay and lack of maintenance of old housing in historic city centres. For the formulation of a plan for

rehabilitation in particular areas, there is a good chance that the poor will be forced to leave and that they will have to sacrifice their centrally located residences for rehabilitation or redevelopment projects. However, such government-sponsored relocation in modern high-rise housing estates is not so common elsewhere, and the poor inhabitants of inner-city areas are often left to fend for themselves, such as in Logan, Australia (Loulanski, 2006; Cheshire and Zappia, 2016).

D. Economic aspects

These certainly dominate the considerations for urban rehabilitation of historical city centres and monuments. Worldwide experience shows that most local and national governments and religious organizations cannot afford to conserve and improve a large majority of even their most precious monuments.

Efforts to improve the financial status of national archaeological institutes and to increase their portfolio have mostly been unsuccessful, as most governments seem to shy away from additional expense for the preservation and rehabilitation of monuments (Navrud & Ready, 2002).

The economic problems of financing the preservation and upkeep of monuments have stimulated a good deal of debate about the possibilities of doing this through the approach of "adaptive re-use" and to invite the private sector (or non-governmental institutions) to lease historic buildings with commercially viable activities (Mason, 2005). These activities would pay for the rehabilitation of the monuments and have an overall revitalizing impact on the economic development of such areas. Liveability has two opposing sides that must be kept in balance: one is livelihood and the other is ecological sustainability. Livelihood is having employment close to housing that provides a wage proportionate to rents and having ready access to services. It must be sustainable, so that jobs and housing are provided in a way that does not cause degradation to the environment and whereby residents are not forced to choose between liveable wages and a healthy environment (Evans, 2002).

In the context of the modernization of cities and their historic centres, there is also concern for the old, historic types of land use. Most of the traditional economic activities (in cities like Cairo, Tunis, Sana'a, Old Delhi, etc. these are almost mediaeval style activities) will over time be unable to survive, particularly in locations where rehabilitation of historic city centres has the effect of "gentrification" (Smith, 1986).

As rehabilitation is introduced, not only does the value of the land of these areas increase, but so also do local revenues. Such revenue increases can have an additional stimulating impact for the rehabilitation of infrastructure and other services in conservation areas. Thus, rehabilitation of historic city centres will contribute both to the modernisation of the private commercial sector and to enhance revenues.

E. Urban morphological approaches

Urban morphological approaches are also very prominent in the rehabilitation of old city centres. Each historic city has its own specific urban patterns or features, such as the nature and density of land use, height of buildings, width and pattern of circulation routes (roads, alleys, and footpaths), building typologies, as well as specific patterns of use and infrastructure components. These form the components of the "urban tissue". Within the urban tissue the size and format of individual plots is a prime characteristic that has a wide impact on the urban form and appearance (Gauthiez, 2004). For area rehabilitation, it is essential that the maximum possible preservation of the original urban pattern is a prime objective of conservation programmers. Once the urban pattern is no longer respected and has been widely modified, the nature of the built environment is bound to change radically. Hence, for many physical planners this issue is one of the prime areas of concern, and it is from this perspective that all efforts to generate new uses for old buildings and neighbourhoods need to be evaluated (Bandarin & Van Oers, 2014). Conserving the physical aspects of the environment alone will not suffice in preserving the community's cultural heritage; similarly, the promotion of development and livelihood is essential for property conservation (Hosagrahar, 2013).

Some experiences and proposals of rehabilitation, as in the cases of Singapore, Cartagena, Bhaktapur, Cairo and Galle, have stressed the importance of the preservation of existing urban patterns and tissues, and some have even developed detailed design guidelines (Bhaktapur, Singapore) which are to be applied by private investors (Steinberg, 1996).

1.6 Application of methods within the rehabilitation approach

According to Fitch (1990), Karsten (2015), Rogers, (2014) and Sin and Yoh (2016), the main purpose for preserving historic cities is to save money and energy in the re-use of older buildings rather than constructing new buildings; to achieve socio-economic benefits of reviving depressed commercial areas; to make low cost housing available; to provide a physical and social record of the city's development; to establish and preserve national identity.

Figure 1.3 presents rehabilitation as the main approach of intervention and relevant methods and techniques with consideration to the five key elements in development and improvement of historic cities.

Integrated urban development plan in Historic cities				
Overall Approach	**Rehabilitation**			
Scale & levels	**Macro Level**		**Micro Level**	
Different Aspects	National scale	City scale	Neighbourhood scale	Architectural scale
	Religious/Political/Economic/Socio-Cultural/Physical/Livelihood			
Specific methods of intervention approaches	Renewal Revitalisation Regeneration			
Techniques or Strategies	Adaptive Reuse, Restatement & Conversion – Physical/ Cultural Reconstruction – Physical Recuperation, Conservation, Preservation & Protection – Physical Repair, Restoration & Improvement – Physical/ Cultural/ Economic/ Political Demolition & Reconstruction – Physical Gentrification – Socio-Cultural/ Religious Consolidation. Restructuring & Remodelling – Physical/ Cultural/ Political/ Economic/ Religious Reintegration – Physical/ Political/ Economic/ Socio-cultural			
Components	• Spatial history, architecture, historical monuments, old houses • Social structure (Culture, Social class, Social status, Roles, Groups and Social institutions) • Financial and Economic development • Organizational • Legal (Urban Planning; Policies and Urban development) • Physical improvement (Individual buildings, Streets, Public spaces, Urban furniture, Urban facilities, Urban infrastructure) • Environmental actions (Limit water use, Leave your car at home, Walk or cycle to work, school etc., Recycle waste, Compost) • Training & Education • Developing a neighbourhood strategy (Development, Improvement and Expansion) • Repairing and improving housing structure			

Figure 1. 3 Rehabilitation approach, methods and techniques. (Source: Author, based on Fitch, 1990; Karsten, 2015; Rogers, 2014; Sin and Yoh, 2016)

Conclusion

This chapter has answered the question asked in the introduction of this chapter: “What is urban intervention in historic cities? and what are the rehabilitation approaches, methods and techniques?”

The literature review carried out in this chapter show that there is still a great deal of progress to be made regarding definitions of rehabilitation of historic cities. Demolition of historic city centres, of old housing stock and of monuments continues in most developing countries, either by active policies of clearance and replacement or by passive policies of doing nothing to halt the slow deterioration of such areas. What is preserved will be isolated and without impact on the life of the majority of the population. Rehabilitation strategies should, of course, aim to avoid the idea of static preservation, and not attempt to "fossilise" the past and convert it into a sort of open-air museum. It follows therefore that there is an urgent need for approaches to rehabilitation which maintain - or better "sustain" - the typical and essential qualities of the historic city areas, and of the life of the resident communities, but which can also adapt these physical structures and economic activities in accordance with the needs of the present. A holistic approach of rehabilitation is needed. Selectivity is crucial. This implies, for example, a choice of new design concepts and relevant new technologies to enable older buildings and areas to adapt successfully to modern needs but without destroying the existing urban form. This chapter has defined the term ‘rehabilitation’, identified different methods, strategies and actions from reviewing the European approaches in relation to the rehabilitation of historic cities and neighbourhoods. Figure 1.3 shows how these three layers interconnect with each other and can support the process of rehabilitation of historic fabrics. Hence, the factors and approaches to rehabilitation identified can be useful to examine the case studies introduced in the earlier part of this chapter and the further depth analysis of these cities will be presented in chapter two of this research. This chapter also identified key factors that can influence rehabilitation: socio-cultural, economic, physical formation and livelihood of the residents. These key factors are important to shape the conceptual framework of this research, which will be used in future chapters to analyse the case studies.

Chapter Two: International Rehabilitation Experience

Introduction

This chapter addresses the first objective presented in the Introduction, which is to identify approaches, methods and techniques that are used in various historic cities around the world, and begins to address the second objective, which is, "To develop an integrated conceptual framework, for analysing and understanding the key challenges that are currently facing the historic districts of Iranian cities". The chapter addresses the supplementary research question, "What have been the outcomes of rehabilitation interventions in international experience?"

It is necessary to study international examples because rehabilitation is connected to individuals and organisations, interventions and the relationships between residents and government. Therefore, it is necessary to examine international case-studies in order to identify what kind of rehabilitation approach, methods and techniques were chosen and how they are implemented in those case studies.

This chapter reviews key literature focused on specific examples, which is used to develop a conceptual framework for the rehabilitation of historic cities in Iran. Documentary review methods are used. The conclusion of this chapter will present different methods, techniques and actions for rehabilitation that can be useful for Iranian historic cities. Subsequently, Chapter 3 will then present the integration of appropriate approaches, theories, methods, strategies and policies for the rehabilitation of historic districts that can be used for Shiraz historic fabric with the ability to be applied to other historic cities in Iran.

2.1 Selection of examples: Why, How and What?

During the past decade, it has been recognised that cities consist not only of the material and physical heritage, such as, buildings, streets, fountains and land marks, but also of the natural landscape and the residents, with their customs, social relations, beliefs and rituals. Nowadays more than ever, the city centre is confirmed by the recognition of the local population as a historical area. The term 'historical' can include architecture, social, urban and environmental factors which depict the social and cultural life of the community (Sylvio, 2011).

The precedents in urban historic rehabilitation have been set by various ministries of culture internationally, who prepare nominations for the World Heritage List (Kurin, 2004). Kurin stated that the complexity of the task requires innovative agents to be able to deal with issues such as:

- Improving access to the historic quarters (the road network both internally and externally, intersections, parking, transportation relations with the metropolitan area and regional communication).
- Improving basic amenities (drinking water supply, sanitation, energy and telecommunications) and other basic services (such as household refuse collection, civil protection).
- Improving and rehabilitating housing.
- Promoting and selecting those economic and commercial activities which are appropriate within the historic city and are affordable.
- Developing and upgrading local council services.
- Preserving historic monuments, and cultural and urban heritage, making changes, if necessary, for satisfactory maintenance and financial gains.
- Classifying and easing the regulatory, administrative and land restrictions on the use of land and open spaces.
- Introducing and maintaining green areas and trying to reduce CO2 emissions and effects on climate change.

These interconnected actions have been considered in many historic cities in the world as the responsibility of the local government, calling for a multi-faceted municipal strategy. It is therefore becoming evident that modern thinking on the facilitation of rehabilitation of historic cities involves a comprehensive policy and programme which goes beyond heritage. Heritage is only one component which needs to be considered in conjunction with other factors, or it becomes unsustainable.

In Middle-Eastern countries recently, 'Project Implementation Units' (PIUs) have begun to be established which involve the participation of citizens with local central authorities. This increases the availability of major loans and grants from the international banking community.

In order to qualify, programmes need to have political backing, a flexible strategic master plan, community participation, investment opportunities, national and/or international loans, private sector participation and local, national and regional co-operation. Such examples exist in Edinburgh, Bath, Cairo, Fes, Istanbul, Barcelona and Mexico City (UN World Urban Form, 2004). Therefore, it is possible to identify policies and methods used in cities in Europe, and in Islamic countries, in relation to the rehabilitation of the historic core as the foundation of the conceptual framework developed in this thesis. Three examples are selected: Bath, Barcelona and Cairo.

Bath's experience of rehabilitation is a useful case study in relation to understanding how conservation, as part of a rehabilitation approach, plays an important role in the enhancement of the urban continuity and fabric cohesion. Like Shiraz, it is a city-wide UNESCO World Heritage Site, which adds to its value as an example. Also, the rehabilitation process in Bath's experience produces multi-visions of rehabilitation, requiring well-regulated management. This method includes an approach to development that includes community development and using urban potentials in the process of rehabilitation, which could be useful for rehabilitating Iranian historic cities (Gharib, 2014). Figure 1.1 shows a description of the concept that examines different countries in Europe and Islamic lands and makes the comparative evaluation is provided, and some key aspects of rehabilitation are discussed in section 1.5. This research involves considerations of the need for rehabilitation, which maintain the typical urban tissue and essential qualities of historic areas.

Barcelona is a useful case study, because there was an emphasis on developing an integrated approach to urban rehabilitation, despite an exaggerated emphasis on the physical form. There was also a political change, with alterations in local governance and policies (Blanco, Bonet, and Walliser, 2011). Furthermore, there were also social changes, with gentrification policies being introduced in the district of El Raval (Casellas, Dot-Jutgla, and Pallares-Barbera, 2012).

Cairo was selected as a case study because, like Shiraz, it is a city in an Islamic country with both pre-Islamic and Islamic elements and has experienced European intervention. Furthermore, it has experienced several internationally and locally-driven development projects. In the process of redevelopment, it faced different challenges such as physical and socio-economic deterioration. During this process, a need for clear objectives and policies was recognised and therefore, such policies were formulated.

This case study is focussed on the social, economic and physical dimensions of rehabilitation (Garib, 2011). The following section will present the rehabilitation experiences in those areas. The first international example is in England with particular reference to the historic city of Bath.

2.2 Experiences in rehabilitation of historical contexts in England

England is a country with many historic buildings. However, this precious heritage can often become a point of weakness, because of the variable economic and social conditions such as immigration causing lack of awareness of cultural significance and fluctuations in economy affecting financial support (Rodwell, 2008). Nevertheless, legal protection of this heritage is not enough, as owners of historical buildings are often faced with the cost of maintaining old structures. Hence, they frequently need financial assistance. In Great Britain, the current management responsibilities related to historical contexts is with the Ministry of Communication, Culture and Sport, which works in parallel with several other organisations, such as English Heritage and the Royal-Parks organisation, and financial authorities such as the National Heritage Fund. Methods of intervention in England are sometimes quite conservative in historical contexts and are generally different from other European countries. This country's actions are based on tourism and commercial activities and are bound to follow the principle that the main passages of the old town must be available for business (Rodwell, 2008).

A review of the NPPF Report (DCLG, 2012), identified that in England, there is a variety of approaches and intervention areas are more important. The key elements of the planning framework in England are summarised as follows:

- Attention to the buildings as a strong competitive economy
- Ensuring the vitality of town centres
- Supporting the rural economy
- Promoting sustainable transport
- Deporting high quality communication infrastructure
- Delivering a wide choice of high quality homes with requiring good design
- Promoting healthy communities
- Protecting green belt lands
- Conserving and enhancing the natural environment & historic environment
- Facilitation of the sustainable use of minerals

The planning framework process in UK is presented below in Figure 2.1.

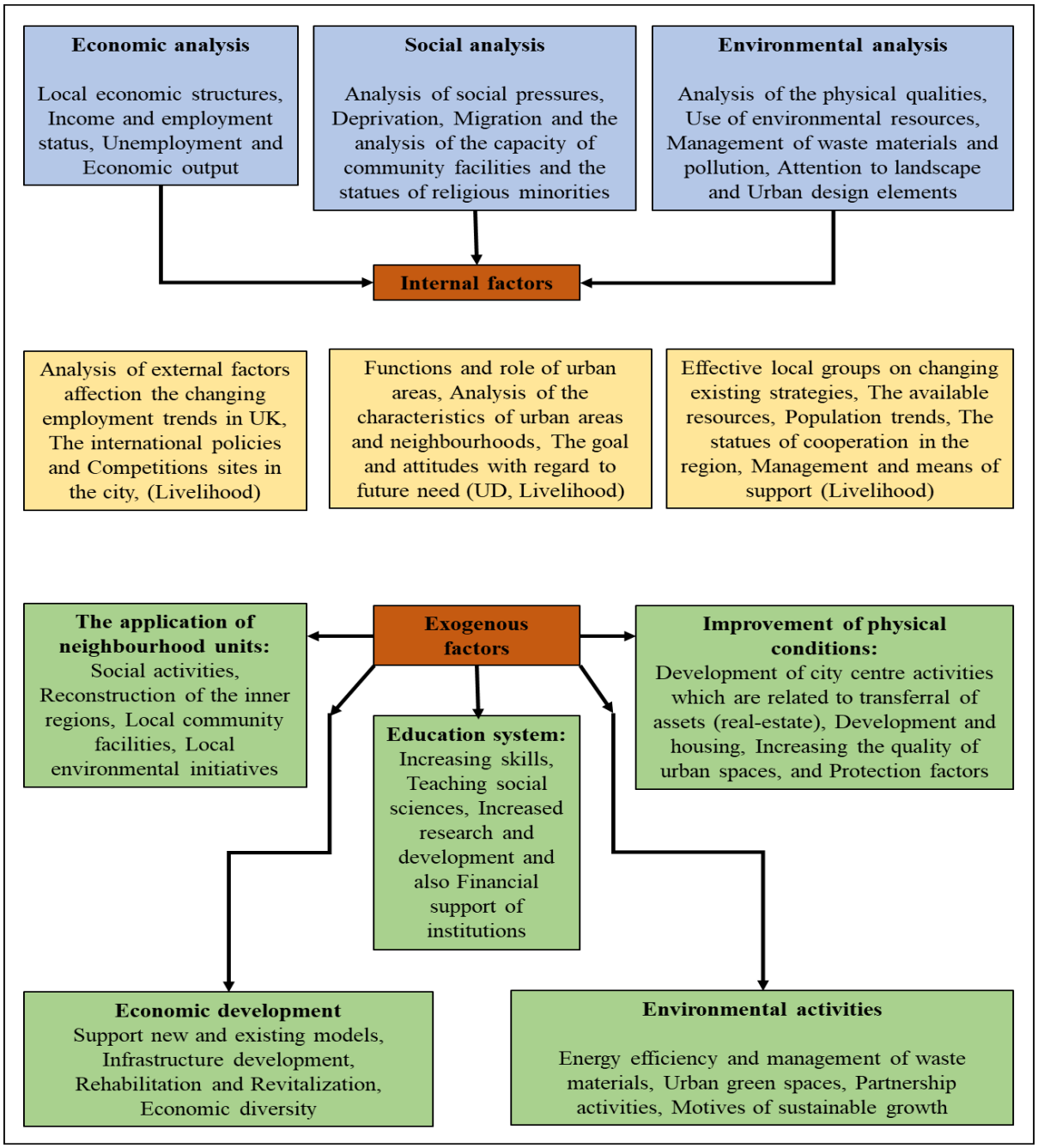

Figure 2. 1 The planning framework process in the United Kingdom; (Source: Author, based on Tallon, 2013).

Figure 2.1 identifies that the economy, social and environmental factors are internal factors for rehabilitation of historic cities in England. Also, external factors such as social activities, local community facilities and improvement of physical conditions relate to the economic development plan and environmental activities (Tallon, 2013). Those connections are important for assessing the situations of historic fabric at both macro-level and micro-level.

The outcome of this approach can be helpful for this research to find key factors and the interrelationships between them. From the explanations provided in Chapter 1 of this research, from Figure 2.1 and literature review (Larkham, 2002; Carmona, Heath, Oc, and Tiesdell, 2012; Heath, Oc, and Tiesdell, 2013), it is possible to identify combinations of approaches that have been applied to historic cities in England as follows:

- Safeguarding methods
- Local intervention methods
- Protection methods

Also, the actions that occur in historic cities in England are as follows:

- Furnishing and decorating public spaces
- Attention to urban fabric & also urban activities
- Attention to the urban monuments
- Best use of old buildings
- Giving the city a new profile and eliminating unsanitary neighbourhoods

In order to achieve this, several specific techniques have been employed and can be categorized as follows:

- Protection & Decoration
- Consolidation & preservation
- Restoration & Rehabilitation

Literature identifies that a good example of rehabilitation in England is city of Bath, where policies relating to conservation such as national and local management, development plans, national planning policies and design, protection of monuments and historical assets, access statement and analysis of current management have occurred (Pendlebury, 2016; Ford, 1978).

Hence, the following section will present the historic city of Bath as an international experience in relation to rehabilitation.

2.3 Example 1 of Rehabilitation in Europe: Bath, England

The pleasing landscape, with historic architecture (Figure 2.2), which are due to Roman and Saxon settlement in this region, and works such as the medieval gates, constitute the dynamic history of this historic city. The royal patronage of the spa in the Georgian era (1700s) led to Bath becoming a fashionable resort. The influx of wealth from the high number of visitors had a strong influence on the architecture, and indeed much of Bath's impressive architecture was built during this era. Some of the best-known architectural landmarks are the Royal Crescent and The Circus, designed by John Wood in 1774 and 1768 respectively. Key characteristics of these landmarks are the use of local stone and Palladian revival-style buildings with continuous facades (City of Bath World Heritage Site Management Plan, 2016).

However, at the beginning of the Victorian era (1830s), the number of visitors declined, due to the growing popularity of seaside resorts. Bath's industrial expansion fell behind that of the rest of the country and it maintained its reputation as a place of genteel residence and retirement. It was hoped that the arrival of the Great Western Railway and rediscovery of the Roman origins would restore Bath's popularity. However, these factors had little effect on Bath's visitor rates. In the Post-War period, there was rapid socio-economic change in Bath, like in the whole of the country. This included the rise of motoring, modernist reconstruction, and later, the conservation movement, which was part of a rehabilitation approach (City of Bath World Heritage Site Management Plan, 2016).

The city is a World Heritage Site, registered by UNESCO (recorded in 1987). Rehabilitation of the city of Bath is not merely limited to its historic core, but also includes all spaces in the historic city.

2.3.1 Bath's development and rehabilitation strategies

Since Bath is a World Heritage Site, it requires a management plan to provide a framework for the conservation of cultural assets. The aims of this plan are to protect and enhance the architectural, archaeological, landscape and natural assets and the urban and landscape settings. As well as physical form, the socio-cultural and economic life of the city is supported by the plan (City of Bath World Heritage Site Management Plan, 2016). In order to achieve this, it was necessary to establish a spatial strategy for Bath (Table 2.1).

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Table 2. 1 Aspects of the spatial strategy for Bath (Source: City of Bath World Heritage Site Management Plan, 2016).

This section presents the conservation area character to identify design principles that are used for different neighbourhoods in Bath. The Bath Preservation Trust was founded in 1934 and is the primary such organisation in the city. It played a leading role in the campaigns of the 1960s and 1970s to save Bath historic city (Tittler, 1991). Within the World Heritage Site, there is a conservation area, which was first established in 1973 and which was extended several times, most recently in 2002. BANES Council in 2005 identified six parts of the conservation area to be appraised in order to provide evidence to support the design and development principles for the site allocations in the Placemaking Plan. These six areas are:

- Brassmill Lane, Lockbrook and Western Riverside
- City Centre
- Bathwick
- Twerton, Whiteway, Southdown and Moorlands
- Pulteney Road
- North Road and Clevedon Walk

BANES Council undertook a morphology study in 2014 to understand more fully how places are put together and how they connect to their surroundings. The patterns in the city of streets, plots and buildings and the aesthetic, historical and archaeological value of the city were examined in order to inform planning policy and future development. The study also aimed to gather information about the fabric and structure of the city in order to retain its identity. It also recognised that different parts of the city each have their own characteristics and identity. Through this, principles for design for each area were identified, alongside three common core principles, which are:

- Combinations of aspects
- Shared elements
- Persistence and inflection of forms (City of Bath World Heritage Site Management Plan, 2016)

Hence, the important goals of rehabilitation of the historic fabric of city of Bath are as follows:

- Full protection of the ancient fabric, owing to the important role of economy, culture and tourism.
- Attention to the objectives and considerations of the restoration of urban culture, with close regard to local cultural values in this historical context.
- Population displacement (the social goals).

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Figure 2.2 Location of the city in Great Britain & Map and aerial photographs of the city of Bath, England; (Source: Conservation of Bath report).

2.3.2 Cultural heritage assets

Bath's management plans encompass a wide range of cultural heritage sites, reaching beyond those incorporated by a strict interpretation of having outstanding universal value. These include:

- The built heritage: buildings, streets, footways, and bridges; including the structures associated with Isambard Kingdom Brunel's Great Western Railway and John Rennie's Kennet and Avon Canal.
- Parks, gardens and cemeteries;
- The archaeology: including the potential for future discoveries;
- The natural environment, respecting the importance of the geology and biodiversity of the city;
- Cultural traditions, including the culture of bathing and healing associated with the hot springs; a place of social interaction especially in the eighteenth century and the city's links to many notable persons in the arts, sciences and public affairs (Orbasli, 2002).

The policies and implementation strategies proposed in this programme have been explained at two major levels; one is physical and the other includes transport and traffic. Hence, the most important of these factors are as follows:

2.3.3 Physical factors

Lynch (1960), stated that visualizing space and time is essential as the basis to reach an understanding of environment. Also, there are some factors such as quality of views, identity, eligibility, perceptibility, continuity, social and cultural environments, the quality of urban buildings and the quality of public spaces, which all are parts of physical setting for life in cities and neighbourhoods. Therefore, analysis of physical factors will help this study to achieve the following points:

- To monitor the design and structure of architectural buildings.
- To maintain a continuous façade of the buildings and streets.
- To grant a new function to the buildings or urban areas without any necessary changes or special structures.

- To create tourist and recreational facilities and equipment for international tourists.

2.3.4 Transport strategy

BANES Council (2017) identified congestion and its resultant air pollution as one of the threats to the conservation of Bath. The following recommendations were consequently made:

- That the spatial strategy makes the most of existing public transport infrastructure
- Flow of traffic in the streets, within the historic city.
- Construction and development of fast roads in and around the historic city, or underground.
- Using various methods of planning to determine the exact applications of the historic fabric.
- The basic principles of this plan should be based on transformation of the historic fabric, in order to satisfy contemporary requirements.

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Figure 2. 3 An example of a continuous façade, in the restoration of the historic fabric in Bath, England; (Source: Conservation of Bath report).

The Bath plan favours the preservation of the city's historic fabric and in new developments, allows only the highest quality in contemporary design and infill (Figure 2.3). It also recognises the potential that high quality interventions offer for improving the condition, presentation, accessibility and use of the site, and identifies the tools that may be used to achieve this. The plan for the city allows for growth of business by permitting the expansion of retail floor-space only in less sensitive areas south and west of the line of the medieval walled city, towards the railway station and western riverside (Rodwell, 2008).

2.3.5 Conclusion and results of the core strategy and placemaking plan of Bath

The report of the department of architecture and planning in city of Bath, 2017, identified that many buildings which have important historical and architectural factors, are also in a condition that leaves much to be desired in terms of physical urban contexts. Indeed, these buildings have remained largely unused. Indeed, most of the buildings seem undesirable, due to an unsuitable arrangement of interior space and unfavourable exterior views for use in their revised, modern function (BANES Council, 2017). Thus, amongst the other results of the proposed measures for the rehabilitation of the historic fabric of the city of Bath, one should note the following items:

Country / City	Problems	Solutions
England (Bath)	- Citizens travelling in a historical context. - Vehicular traffic in the historic fabric. - Population density in the historical context. - Land use for economic resources. - Facilities and equipment required for rehabilitation of the historic fabric. - The loss of individual buildings, urban complexes, and the historic old walls.	- Construction and expansion of rapid routes around the historic town or underground. - Population displacement. - Accurate planning for new uses, in order to provide economic resources. - Facility dedicated to outfitting the city. - Supervision of architectural design, well matched with the historic fabric patterns. - Preservation of the historic fabric of the Roman heritage.

Table 2. 2 Problems and solutions for the rehabilitation of the city of Bath, England; (Source: Author; Based on BANES Council report, 2017).

From Table 2.2, it can be stated that the rehabilitation of the historic core of Bath is based on the renewal. Hence, the Museum-style and morphological-typological approaches were the key factors in the rehabilitation of historic fabric in this city.

The following section presents rehabilitation experiences in Barcelona in Spain.

2.4 Example 2 of Rehabilitation Practice in Europe: Barcelona

This section deals with a second European case study. Barcelona was chosen as a second example because its rehabilitation practices were strongly rooted in local governance, with policy innovation, creating different strategies and policies for different areas according to the need, mostly based upon European charters (Blanco, Bonet, and Walliser, 2011). This makes this a strong example for this research to examine and use Barcelona's positive and negative outcomes to inform a new rehabilitation strategy for Shiraz.

Due to the consolidation of democracy, bringing with it the extension of the Welfare State, the Spanish experience of rehabilitation practice differs from that of the English. This extension meant that the local Spanish governments had their powers and spending capacities increased in 1950s. However, administrative reforms, inspired by New Public Management did not start to be applied until the mid-1990s and they coincided with the appearance of new forms of network governance, for example Strategic City Plans and the Local Agenda of justifying organisational structures (Blanco, Bonet and Walliser, 2011). Barcelona is a good example of rehabilitation practice using a variety of methods, such as regeneration, and techniques such as interventions in public spaces and housing as a socio-economic measure, reconstruction of buildings and monuments, and integration of land-use. This combination of methods and techniques could be useful for the development of the conceptual analysis and for rehabilitation of Shiraz historic core.

2.4.1 Barcelona, Spain

Barcelona is comprised of eleven districts, each of which has its own historical and cultural features (Tyler, 2009). Barcelona city is considered in this research as an example of both a Mediterranean city and a waterfront city that has experienced success in structural, community, institutional, urban and physical development and readjustment processes. The core of Barcelona is a relatively important region, being the capital of Catalonia (Domene, & Sauri, 2006). It is also Europe's largest metropolis on the Mediterranean coast. As shown in Figures 2.4 and 2.5, the core city of Barcelona is situated directly on the Mediterranean Sea.

It is bordered by natural features in several directions: the Collserola mountain ranges to the North and the rivers Besos and Llobregat to the East and West respectively, (Duarte, 2007). It is important to identify Barcelona as a historical city, whose urban structure has evolved progressively, until it reached its present state. The compact and dense urban structure of the city can be traced back to Cerda's 1855 Memorandum for the Preliminary Project for the Barcelona Extension, where the city started as a medieval town bounded by the sea and surrounded by peripheral villages. A final revision took place in the 1967 General Theory of Urbanisation (Mackay, 1985).

From the late 1990s onwards, there was a new wave of reforms. The model of "network urban governance" became prevalent throughout Europe (and in other parts of the world) since the end of the 1990s, based on the formation of networks of different types of both public and private actors as a procedure for producing urban public policies (Anyon, 2014, Stoker 2017). More particularly, it promotes inter-governmental coordination, instead of levels of government holding separate powers or being subordinate to each other; it also organises administrative authorities laterally instead of being divided into areas or departments and it promotes cooperation between public and private sectors in multilateral institutional frameworks rather than solely having a public monopoly or outsourcing privately.

Finally, the network governmental approach favours the creation of new spaces where citizens participate actively, rather than being treated as 'clients' and instead of institutions monopolising political decision-making. The origin and fundamental reason for these transformations is believed to stem from the increasing complexity of local public affairs and the resulting need to offer a comprehensive response (Clarke and Stewart 1997, Christensen 1999), of which the regeneration of disadvantaged urban areas is a clear example.

Opinion varies widely on the role and effects of network governance. Some welcome this pattern as a third way (Giddens, 1984) of dealing with administrative inflexibility and market inequities through the inclusion of a wider variety of actors into public policy development. They state that not only governance networks can provide efficient and effective responses to complex urban problems, but also see the possibilities that this model of policymaking has for the development of new forms of participatory democracy (Stoker, 2007). However, others question this concept and tend to view network governance as a form of elitism in policy-making.

They cite other problems such as the dominance of the most powerful actors in the networks and the lack of transparency and accountability in these kinds of institutional arrangements (Swyngedouw, 2004, Geddes, 2006).

As mentioned at the start of this section Blanco, Bonet and Walliser (2011) stated that rehabilitation policies in Barcelona were established based on European charters. In this regard, from a comparative analysis of different urban rehabilitation programmes in Europe, several authors have observed a convergence in the approaches and methodologies used by different national, regional and local governments. The most notable dynamics of change in this sense are as follows (Andersen 2001, p. 235):

- Geographical focus. That is the targeting of regeneration policies in urban areas where the highest concentration of problems and where the greatest challenges posed by transformation occur.
- Integral intervention. This recognizes the multi-faceted nature of the problems of disadvantaged urban areas, and the resultant necessity to act on them in an all-inclusive manner.
- The implementation of a new organisational scheme of governance networks consisting of different levels of government, public organizations, private organizations and community groups.

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Figure 2. 4 The position of the historical district in Barcelona, Spain; (Source: Shiraz Municipality report, 2010).

Figure 2.5 has been removed from this version of the thesis due to copyright restrictions

Figure 2. 5 Images of the historical district in Barcelona, Spain: 1) Map of historic districts including position of Las Ramblas (Source: Google images); 2) A narrow street featuring Gothic architecture in Barrio Gotico (Source: Barcelonando.com, 2019); 3) Mirador de Colom, a tourist attraction to the edge of Barrio Gotico (Source: Worldalldetails.com, 2019); Maremagnum, a waterside shopping centre near Barrio Gotico and the Marina (Source: tripsavvy.com, 2019).

2.4.2 The rehabilitation periods in the city of Barcelona

During the previous twenty-five years, a sporadic effort has been made to improve urban networks and urban services in the city of Barcelona. Hence, the measures which have been taken in the city of Barcelona, can be considered as one of Europe's most important urban projects, and are classified into four periods:

- Actions carried out before 1980.
- Measures carried out in the first period: 1980-1986.
- Measures carried out in the second period: 1986-1992 (prior to the Olympic games of 1992).
- Measures carried out in the third period: 1993-2004. (Pérez, 2016)

Experiences of renewal in the city of Barcelona during these periods became known as the "Barcelona model". The most important elements in them are as follows:

- Public management by the municipality.
- Establishment of a close relationship between governmental institutions and the private sector in order to provide the financial resources required.
- Development of strategic plans.
- Use of conventional methods of urban zoning.
- Public engagement through neighbourhood associations
- Urging the municipality to achieve a high quality of reconstruction and ultimately provide practical and innovative ideas. (Marshall, 2005; Degen and Garcia, 2012)

2.4.3 Characteristics of the rehabilitation programme in the city of Barcelona

Although several rehabilitation programmes were applied, the general characteristics are the expression of effective points in connection with urban planning and urban design in the historic fabric of the city. According to Monclús (2000), the features of this programme in Barcelona historic core are as follows:

Organizing rehabilitation projects, based on a new emphasis on urban infrastructures and functions. Thus, the experiences of rehabilitation in the city of Barcelona shows that the city needs to match the infrastructures such as traffic, urban sewage, and spaces for services such as parks and schools with their own environments.

As mentioned by Monclús (2000), it can be stated that urban planners have focused their efforts on creating a functional content. In this connection, they have paid attention to four main points as follows:

A. Public spaces have become a focal point for the composition of the whole city, whether they are located in the city centre or in the suburbs. Hence, these spaces are considered to express the cultural capabilities of the city, and they can also be responsive to functional requirements and aesthetics.

B. The creation of urban spaces as part of the rehabilitation projects in historic cities can be used as a reference point for designers who are trying to find a place to implement their plans. On the other hand, the role of green spaces in the rehabilitation of historic cities should not be forgotten.

C. Time is an important issue, which is important in the rehabilitation of the historic exhausted tissue, and hence, the projects need time to be delivered.

D. In the process of rehabilitation, preservation techniques affect the shape of the city.

Analysis of the rehabilitation plan in Barcelona shows that the plan is an excellent example of the renewal of urban form. These rehabilitation efforts include projects of various scales, such as protection of monuments, restoring the historic buildings, designing gardens and squares. In fact, urban projects are often faced with the problem of urban space development and predominantly try to provide essential services for residents and to renovate places which have lost their functionality over time.

In Barcelona the historic districts' rehabilitation plan was also defined for the creation of tourism-oriented activities, especially at the beginning and the end of the historic axes that gave a boost to touristic activities in the historic district especially in Barrio Gotico. Table 2.3 presents the urban policies and main characteristics of urban governance and rehabilitation in the historic centre of Barcelona. Examining the rehabilitation agenda could be useful for Shiraz's historic fabric in terms of methods, techniques and policies.

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Table 2. 3 Main characteristics of urban governance and regeneration in the historic centre of Barcelona, (Source: Blanco, 2011).

2.4.4 Reconstruction of Barrio Gotico

This section will describe rehabilitation in one of the historic districts. The Gothic Quarter was chosen based on its commercialisation of heritage through marketing, which accentuates the relationship between tourist attraction and creation of urban space. The Gothic Quarter of Barcelona, known as 'Barrio Gotico', was reconstructed between 1927 and 1970. It is, today, the political centre of the metropolitan area of Barcelona, as well as a popular destination for tourists, containing the Cathedral, the City Hall, and the popular street, Las Ramblas, which extends from the Main Square to the monument of Christopher Colombus on the city's coastal edge (Figure 2.5 1&3).

Although, usually the term 'historic monuments' refers to those from past eras, there are many which were constructed more recently. In Barrio Gotico, medieval buildings were restored in a gothic style, while other historic buildings were moved stone-by-stone into the area and ordinary residential houses were removed and replaced by buildings constructed in a historic style. Consequently, the new Gothic Quarter appears completely medieval but was actually re-built between 1927 and 1970. This re-creation method is both an example of the Catalan inventiveness and identity and a way to promote the city through notable historic monuments, regardless of historical validity (Figure 2.6 and 2.5 (2), Gant, 2014).

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Figure 2. 6 A plaza in Barrio Gotico (Source: www.tripsavvy.com, 2019)

The lessons learnt from Barrio Gotico show that a dilapidated area of a city can be transformed into one of the most attractive areas of the city and a popular tourist attraction, by the reconstruction of old buildings, relocation of other historic buildings and demolition of derelict houses. However, in this case, the historic authenticity was lost, as were residential buildings, losing the socio-cultural values of the district.

2.4.5 Urban rehabilitation in the district of El -Raval

El Raval (Figures 2.7 and 2.8) was chosen as an example to identify rehabilitation approaches to find solutions for an integrated conceptual framework for this research.

This neighbourhood is a place of artists and intellectuals and has great cultural diversity. Grocery stores, restaurants, coffee shops and cultural centres, such as the Barcelona Museum of Contemporary Art and Culture have been established here. The Opera House, which was reconstructed after a fire in 1994, has made a significant contribution to the life of this district by staging several concerts. The monuments and buildings which have survived from the Gothic period, such as the old palace, museums (such as the Picasso museum), art galleries, luxury shops, restaurants and cultural centres, are the attractions of this district.

The district of El Raval, in the medieval city quarter of Barcelona, is an example of dramatic social and economic alteration through regeneration, while many of the streets remain almost as they were in the middle Ages. In 1800, El Raval was not urbanised, but consisted of small market gardens supplying the city. By 1850 the Industrial Revolution caused El Raval to be filled with tenement blocks (for workers from the countryside) and coal-powered textile mills. These buildings were built several storeys high to maximise space, for this part of Barcelona was tightly constricted within the old city walls. The tenement blocks were high-rise slums. Residents shared toilets and running in the courtyard of each block. Disease spread rapidly, and the death rate was high - many dying in their late teens (Fernandez Gonzalez, 2016) (Figure 2.7).

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Figure 2. 7 A tenement building in El Raval today (Source: www.desigbarcelona.com, 2019).

Table 2.8 has been removed from this version of the thesis due to copyright restrictions

Figure 2. 8 Location of El -Raval, Barcelona: (Source: Google; www.barcelona-tourist-guide.com).

'Barrio Chino' has faced the greatest change and has been a prime target of the Government's urban renewal schemes as part of the rehabilitation approach. The arrival of heroin at the end of the 1970's caused the rates of petty crime, previously tolerated, to become a threat to residents and the tourist industry. The Government was fast to act and since 1988 with the closure of cheap hostels and the demolition of residencies associated with drug dealing and prostitution, making way for new plazas. Those removed from the area, were transferred to other areas further out of the city. Another element to the *esponjament* (mopping up) of El Raval has been directed gentrification, with the construction of a new police station and office blocks on the demolished sites. Other planned developments in the most notorious areas include a 14-storey hotel.

The *Centre de Cultura Contemporania* is the first of its kind, and the first to use urban culture to cause changes in social, planning and cultural developments. It is an international example and contributed to the addition of El Raval to the tourist map. The urban rehabilitation of El Raval has been funded publicly, including money from the EU social cohesion fund. Today, private investment greatly exceeds public investment. Government initiatives have concentrated upon enhancing infrastructure, municipal and district facilities, housing, employment, health, education, social services, sports facilities and restricting criminal and antisocial activities. Campaigns have been started to improve the image of the neighbourhood and such promotion of historical and cultural heritage has developed tourism in the area. (Zarlenga, Ulldemolins and Morató, 2016).

The effects of this social rehabilitation plan in this area have been profound, although some problems still exist:

- Emigration from the area continues, but is sustained
- Average household income is falling.
- The housing market has risen.
- The crime rate has dropped dramatically, to a similar rate to the rest of Barcelona
- Schemes continue to rid the area of 'marginal' activity.
- Perceptions of security have improved.
- Education levels have begun to improve.
- Mortality is higher in El Raval than in the city of Barcelona as a whole.
- Programmes have been launched to combat new health problems (tuberculosis, drug addiction, etc.). (Fernandez Gonzalez, 2016)

The typical problems of residents in El Raval, which remain despite the rehabilitation programme, are, in this order:

1. Economic - low income and debt.
2. Health – AIDS and Tuberculosis levels are high, as are malaria levels, due to high levels of immigration. Furthermore, the high proportions of people aged over 64 (28%) and those over 74 living alone (35.9%) contribute to poor health statistics in the area.
3. Social - such as. isolation from family.
4. Unemployment – low levels of education mean that jobs created in the area are likely to be filled with candidates from other areas.
5. Housing.
6. Social psychology - for example problems within families.
7. Legal issues - such as conflicts between landlords and tenants, lack of work permits.
8. Schooling - truancy and low literacy levels.

Sans and Quaglieri (2016), reported on Air B&B in Barcelona and found that it helped to rehabilitate neighbourhoods, by accommodating tourists in areas away from quarters with large concentrations of hotels; it increased the quality of tourism, by attracting visitors who wished to experience an authentic taste of the Barcelona culture; and it helped support families, with government support for host families.

The following lessons can be learnt from the rehabilitation of El Raval:

- Organising projects to improve urban infrastructure and applying mixed-use plans for different parts of the district as necessary. These actions relate to parks, schools, sanitation and traffic systems.
- Improving the quality of urban space by adding historic characteristics to monuments and buildings. In this regard, public spaces play a role in integrating the different parts of the city in one space, whether in the centre of the neighbourhood or in the suburbs.
- These spaces are responsive to urban function and improve the aesthetics of urban spaces for both residents and visitors.

2.4.6 Conclusions on European approaches.

Other historic cities such as Paris, Berlin, and Florence have had several major rehabilitation actions of their historic cores. These can also be useful approaches and methods for the rehabilitation of Iranian historic cities (Pickard, 2016; Sims and Winter, 2016). These major actions are summarised as follows:

- Full protection of the historical context regarding the role of tourism.
- The creation of logical connections between the historic fabric and new urban context.
- A new definition of interactions in the city, according to new socio-economic factors.
- The upgrading of the quality of life for residents in the neighbourhoods of old towns, having regard to the full protection of the historic districts.
- Residents' participation in the rehabilitation process, through neighbourhood associations.
- The renovation of historic fabric of the city and restoration of civil life.
- The organization of urban spaces in historic context.
- The establishment of a balance between urban development and the preservation of historical and cultural heritage.

European examples of urban rehabilitation show that a multi-level approach is essential for successful rehabilitation of urban historic fabric. Social problems need to be addressed together with the physical fabric. The methods used in these European examples were: revitalisation, renewal and relocation of monuments to improve the quality of urban space and socio-cultural identity in the historic area.

This information can help this research to create a coherent view of approaches, methods and techniques that are used in various historic cities. In order to gain a more comprehensive picture of rehabilitation it is also necessary to examine the process of rehabilitation in Islamic countries to see how the difference of religion can affect urban form and the process of rehabilitation. Hence, in the following section of this chapter the different methods and approaches in relation to rehabilitation based on Islamic approaches are presented.

2.5 Rehabilitation approaches in Islamic cities

Figure 1.1 in Chapter 1 of this study acknowledged that it was necessary to ascertain identifying characteristics of Islamic cities and determine key factors for the rehabilitation of historic fabrics in such cities. The findings of the review into the rehabilitation process within historic cores in Islamic cities direct this study to find more suitable methods and techniques for rehabilitation of these areas. The results will enable development of an appropriate integrated conceptual framework.

An overview of urban development in the Islamic world shows that religious factors play an important role in the formation and expansion of old Islamic towns. Among the monotheistic religions, Islam has had the greatest role in the development of urbanisation. This is related to religious law and the desires of the residents to be holy (Babaoghli & Ezzat Panah 2013; Noroozi, 1999).

Theorists such as Richard Fry (2002), Riaz Hassan (1972), and Ibn Khaldun (1969) believed that Islamic cities, on the one hand, caused old towns to be affected by Islamic rules, and on the other hand, led to the formation of entirely new cities with Islamic features.

Another group of theorists such as Josef Ernest Renan (1883), Von Grunebaum (2010), Armstrong (2007), Stefano Bianca (2000), Abu-Lughod (1987), Akbar (1988) and Gole (2002) believed in the connections between Islamic Laws and Islamic urban form. They also believed that Islamic faith plays a role in urbanisation. Moreover, they believed that cities rather than rural areas have better conditions for religious practices (Antoniou, 1981).

Islamic cities are divided into three types, according to the origin of their formation:

1. Settlements formed before Islam, influenced by topography
2. Cities designed in the Graeco-Roman style
3. New Towns founded by conquering Muslim armies (Raymond, 1994).

According to Amirahmadi (2017) and Seyedashrafi, Ravankhah, Weidner and Schmidt (2017), Islamic cities have a hierarchy in terms of urban structures and urban space functions, such as the Grand Mosque, the hierarchy between commercial space and craft markets within the Bazaar, and a variety of residential neighbourhoods. Meanwhile, the existence of fortresses for defence purposes and other physical components such as graveyards and temporary markets outside the city wall, also shaped urban spaces within

Islamic cities (Antoniou, 1981). In most cases, historic areas subject to cultural urban renewal and rehabilitation have been influenced by Western culture, which has given new form to the historic fabric of Islamic cities (Mortada, 2003). Some of the specific factors that have affected the formation of Islamic cities is examined in more detail below.

2.5.1 Natural and climatic features

The adjustment and adaptation of buildings can be caused by both their topography and climate, both of which are important within Islamic ideology.

Using design elements such as terraces, Islamic requirements have been fulfilled, by allowing privacy and connectivity to the mosques, citadel and bazaar. Elements such as covered narrow streets and gardens suit warm weather conditions.

2.5.2 Muslim beliefs

The Muslim belief that cultural life should avoid extravagance has led to the simple design of urban areas, with the result that mosques have become a focal point in the hierarchy of institutional and spatial order. It also led to a combination of private and public spaces being located around the mosque. As explained in Section 2.1, in Islamic countries, urban patterns include narrow streets, the separation of public and private domains from each other and in some urban areas, the separation of women from men. As a result, many economic, social and business activities, which were used by residents, became separated from residential spaces and became concentrated in the public spaces, such as bazaars (Abu-Ghazzeh, 1994).

2.5.3 Built form principle

The basic principles and building guidelines of the Islamic urban form were derived from the essence and spirit of Islam when it began in 622 AD and became well established by the year 912 AD (Hakim, 2004).

Al-Hakim describes the conceptual model of development of an Islamic city follows the following stages:

- The setting of building guidelines derived from Islamic law and jurisprudence
- A decision-making process based on decisions by rules
- Site and environmental conditions

- The resulting physical form affected by these systems:
    - Religion;
    - Economy;
    - Housing and quarters;
    - Open space;
    - The height of buildings;
    - Government and defence;
    - Health and waterworks (Hakim, 2004).

At the beginning of the Islamic era, rulers' decisions were macro in nature, while citizens' decisions were micro in nature, with less discernible effects than the decisions of rulers. (Hakim, 2004).

These factors of urban physical systems, site, and decision makers that influence the development and improvement of the resulting physical form of Islamic cities are interrelated. This conceptual model presented in Figure 2.10 explores the basic intellectual, social, and environmental aspects that have shaped Islamic architecture. It reveals these aspects as reflected in the building forms of Muslim societies.

2.6 Recognizing international experiences in terms of issues and solutions for the rehabilitation of Islamic historical cities

Amirahmadi (2017) states that there are common elements between Islamic cities in different parts of the world and therefore a comparative analysis can be made between them and the common problems they face and the solutions to the problems. Some of the main issues and solutions are listed in Table 2.4. This could be useful for the rehabilitation of Shiraz historic fabric since although each city has its own unique characteristics, they all share Islamic values and therefore the problems experienced in other cities may be similar in Shiraz, thus the solutions may also be applicable to Shiraz historic fabric.

A Shiraz Municipality report (2010) analysed and evaluated cities as case studies for identifying different practical rehabilitation experiences. These included: Cairo, Istanbul, and Baghdad. This identified a series of both specific and generic problems, and in some instances, solutions. In the next section, and illustrated in Table 2.4, the problems and solutions related to rehabilitation techniques in Islamic cities are identified.

City & Countries	issues	solutions
Cairo in Egypt	• Population growth • Wide streets & concert buildings in order to modernize the urban fabric • Socio-economic crises • Historic neighbourhoods & the way of protection historic buildings • Protection of historic fabric inside the castle & demolishing outside urban fabric • Lack of technical and financial resources • Lack of proper understanding of restoration knowledge in the reconstruction of historic monuments	• An agreement between urban planners to improve the quality of Bazaar in relation to develop the mix-use spaces to provide commercial and public services to attract tourists.
Istanbul in Turkey	• The physical and functional deterioration of the historic fabric • Population growth and uncontrolled expansion of historical context • Lack of coordination between the government and residents of the historical context to enhance the quality of historical neighbourhoods • Demolition of old buildings without permission, existence of buildings prohibited from destruction. and unlicensed intervention by landlords	• Physical and economic revitalization in the process of authenticity, to the historical context • Revitalizing and rebuilding historical neighbourhoods and stop the destruction of historic buildings • Encouraging artists and intellectuals to live in historical context • Encouraging residents to participate in the community
Baghdad in Iraq	• Prevent the migration of the local residents from the historical context • Traffic pressure in the centre of historic fabric • Rehabilitation historic neighbourhoods • Increasing pedestrian connections within historic fabric;	• Establishing a harmony between the city's commercial centre and the physical condition of the historic core • Review existing pedestrian network, and emphasis on the use of public transportation system • Improve the neighbourhood's accessibility and avoiding traffic within the neighbourhoods; Providing urban amenities; Restoration of Bazaar and conversion of some pedestrians to the limited passageway
Mecca in Saudi Arabia	• Increase in population in some years of the year • The lack of efficient public transport system to transport pilgrims • Extensive development of the old structure of historical texture	• Construction of a roadside ride around Mecca • The construction of a number of converging subways towards the shrine • Designing a circle transportation system around the shrine to create a traffic flow around the Masjid al-Haram • Using public train for transportation
Baku in Azerbaijan	• Preserving the Medieval City • Existing of twisty passages that has a width of less than 2.5 meters, which does not allow air circulation in the passageways	• Demolished old houses, and new houses built with modern equipment • Built urban complex buildings in order to circulate the warm air in winter and cold air in summer
Bukhara in Uzbekistan	• Preservation of historical monuments • Dirty and desolate neighbourhoods	• Restoration of important monuments and signs in the old city center and their reintegration into the life of marginalized people. • Modernization of the urban equipment, and the flooring of streets. • Granting such uses as exhibitions and refurbishment workshops
Tunis in Tunisia	• High population growth rate. • Uncontrolled urban development, especially residential areas with low income levels. • The absence of economic and social equilibrium between different regions within the historical context	• Reconstruction of residential areas for low income groups. • Economic and technical support in the planning process for residential areas with moderate social classes
Damascus & Aleppo in Syria	• Metropolitan transformation in historical context with the realization of a comprehensive urban development plan. • Demolition of traditional courtyard houses. • Willingness to invest quickly and problems of overpopulation • Socio-economic crises • Lack of technical and capital resources • Lack of proper understanding of building renovation knowledge •	• The essential repair of low-income households' houses, and preserving the old town's structure • Preparation of rehabilitation studies based on physical, social and economic research, in order to formulate land use planning and urban development plan. • Proposing a final agreement to upgrade government regulations and training sustainable development for government employees.

Table 2. 4 Summary of intervention in the field of rehabilitation of historical contexts in Islamic cities; (Source: Author, based on Shiraz Municipality Report, 2015).

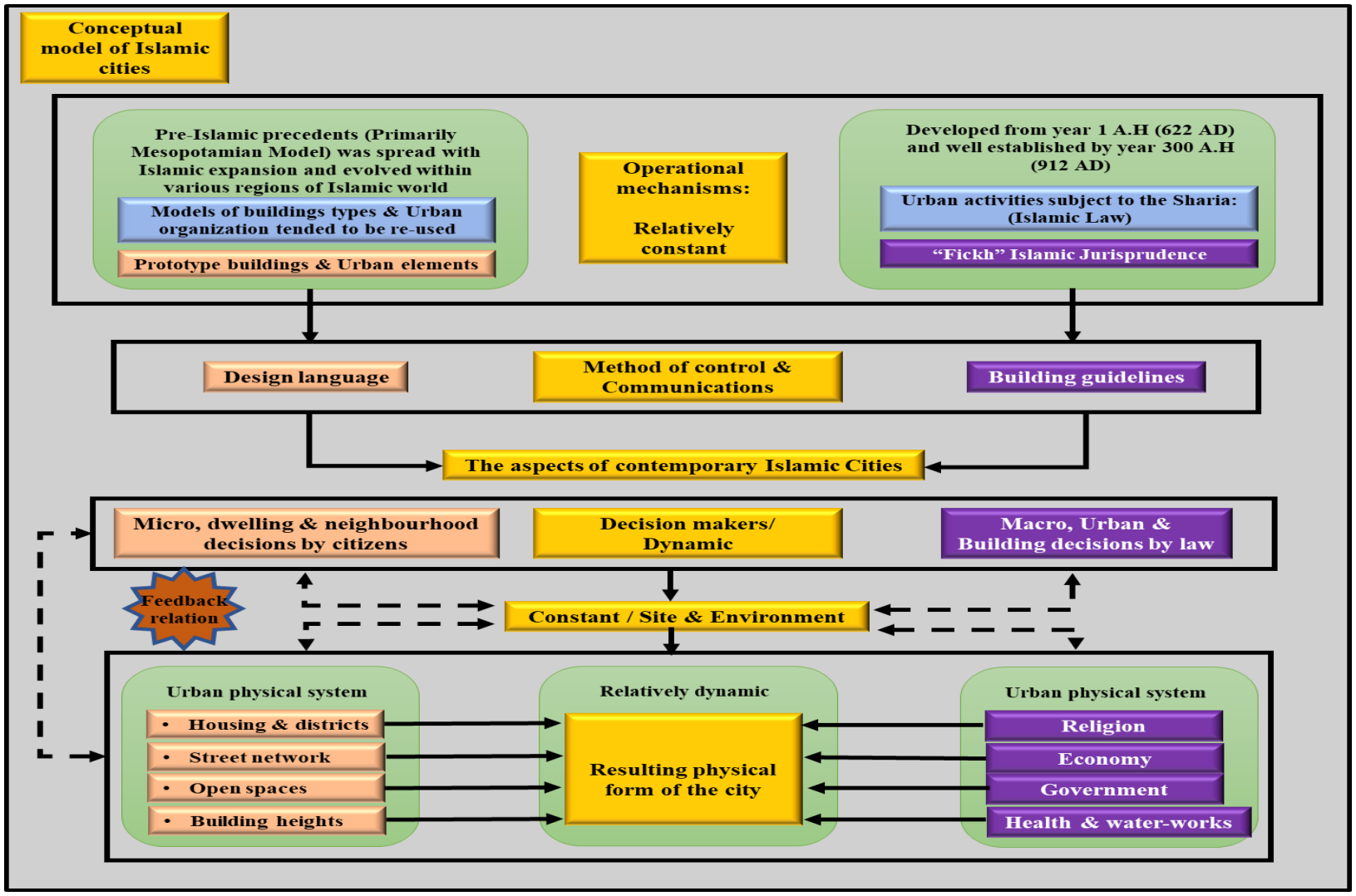

Figure 2. 9 The Conceptual model of a traditional Islamic city identifying the interconnections between controller, decision makers and physical form. (Source: Author, based on the ideas of Al Hakim, 2013).

The second stage consists of a dynamic decision-making process (Figure 2.9) operating in Islamic cities, which is primarily based on decisions by rulers and citizens. At the beginning of the Islamic era, rulers' decisions were macro in nature, creating in most cases a planned effect on the urban fabric; citizens' decisions were micro in nature, with less discernible effects than the decisions of rulers. The Islamic aspect of the history of the city has been ignored by most contemporary urban historians, using Western practices of conservation in the 20th Century. Since World War II, this negative effect has spread to other cultures in the world, including Arab and Islamic countries (Hakim, 2004).

The actual site and environmental conditions comprise a constant step; the last one is a resulting physical form affected by eight factors of urban systems:

- Religion;
- Economy;
- Housing and quarters;
- Street network;
- Open space;
- The height of buildings;
- Government and defence;
- Health and waterworks (Hakim, 2004).

These factors of urban physical systems, site, and decision makers that influence the development and improvement of the resulting physical form of Islamic cities are interrelated. This conceptual model presented in Figure 2.10 explores the basic intellectual, social, and environmental aspects that have shaped Islamic architecture. It reveals these aspects as reflected in the building forms of Muslim societies.

The next section looks at an example of rehabilitation in an Islamic city, namely Cairo, in order to highlight the differences between rehabilitation in European and Islamic cities.

2.7 International Example 3: Cairo, Egypt

The aim of this section is to examine an example of rehabilitation in a city which like Shiraz, has both Islamic and pre-Islamic elements, in order to identify the methods and techniques of rehabilitation which will be useful for applying to Shiraz historic fabric.

Cairo has often been called "the city of a thousand minarets" and "an unequalled treasure house of Islamic architecture", as it contains over a thousand years' worth of monuments, and is the "most concentrated, the most numerous, the most varied collection of monuments in the Islamic world" (Williams, 2008:6). However, Cairo is also a living city, not simply a collection of monuments. One of the main reasons for the survival of its monuments is that, unlike cities such as Baghdad and Damascus, it did not face Mongol invasions. It is also considered unique for its social and cultural life.

The historical core of Cairo, Old Cairo, with an area of approximately 4 square kilometres, is in the heart of the metropolitan area, in the south-eastern part of the city of Cairo close to the Nile (Figure 2.10).

Cairo was put on the World Heritage List in 1979, under the title "Islamic Cairo". This recognition of its cultural value was based on:

- Several monuments being Great Masterpieces
- The historic streets and old dwellings maintaining very historic forms of settlement
- The historic centre shows the importance of the city in the medieval period (UHRC report, 2010)

However, the historic area was not clearly defined, and the legal protection measures lacked detail and were not sufficient in dealing with the problems threatening the historic fabric of Cairo. These problems are shown in Table 2.5:

Problems facing the historic fabric of Cairo
Housing shortages and deteriorating housing
Change of land use from residential to commercial resulting in waste, noise and pollution
Degradation of historic buildings
Unemployment rates of almost 20%
Poverty
Illiteracy
Lack of awareness of the value of historic buildings
Socio-economic pressures
Poor infrastructure
Illegal occupations
Traffic and transportation issues

Table 2. 5 Problems facing the historic fabric of Cairo, (Source: Author based on Wiliams, 2008).

Six priority zones were identified, where old buildings would be restored, and new buildings controlled. However, the plan was never definitively put into action and the restoration of individual monuments took place in an uncoordinated manner. Some buildings, such as the Al Hakim mosque, were reconstructed with the effect of losing their historical value (Sutton and Fahmi, 2002). Thus, the rehabilitation of Old Cairo emphasised the physical form, rather than socio-cultural rehabilitation.

Further projects, such as the Greater Cairo Region Master Plan, 1988, aimed to conserve monuments with the purpose of changing their use for social and cultural activities and to develop tourism to Old Cairo to develop socio-economic activity (Sutton and Fahmi, 2002).

The Gamaliya project and the GOPP/IAURIF (a French-backed scheme) rehabilitation strategies in the late 1980s both proposed the introduction of public spaces in front of monuments, to increase the visual effect of the monuments. However, this is more of a European style and is not compatible with Islamic models of urban planning (Sutton and Fahmi, 2002).

The UNDP Rehabilitation Plan, 1997, had two main strategies:

- A tourist-based plan to restore and reuse monuments for business use or museums.
- A community-based plan to upgrade housing for the poorest residents and improve social facilities.

These two strategies must work in conjunction with each other, as the former loses some of the social value when squatters are cleared from their residences but brings in economic rehabilitation; while the latter improves social facilities but provides limited opportunities for economic investment (Sutton and Fahmi, 2002). Other details of the UNDP include:

- Preparation of technical, economic and financial plans.
- Identification of standards such as the criteria for the listing of buildings with historical or architectural values as well as the intangible values, such as particular crafts and traditions.
- Managing and investing in economic projects which will be initiated within the plan of restoring historic areas.

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Figure 2. 10 Map of the city of Cairo, Egypt; (Source: UNESCO, 2012, annotated by Author).

Figure 2.11 Rehabilitation projects carried out under the conservation of SCA since the late 90s (Source: Historic Cairo project)

As a result of World Heritage Committee (WHC) activity, in 2007, four maps were drawn to define the boundaries of the historic core and it was renamed “Historic Cairo”. However, these maps did not adequately define the limits and “buffer zone” of the historic area, so in 2008, UNESCO recommended the creation of a management plan for the conservation of the historic fabric, which included as a first step defining the limits of the city. Other steps recommended were the creation of a technical unit with local expertise to implement the protection of the historic fabric and control of building activities.

In 2009, the Egyptian government and WHC joined together to create a framework called “Safeguarding of Cultural Heritage in Egypt”. The WHC then started a project called “Urban Regeneration project for Historic Cairo” (UHRC) in 2010 (Figure 2.11), using UNESCO funding and technical assistance from the Egyptian government. The aim of this project is to conserve heritage values, instil socio-economic revitalisation and upgrade the World Heritage property. The objectives are to prepare a conservation plan for the historic fabric; form an institutional framework for a sustainable urban conservation policy, involving various institutions which protect the site, and to create a relevant and shared information platform for urban conservation.

In this project, it is recognised that conservation must be intrinsically linked with rehabilitation, that is, not only physical preservation but also socio-cultural and socio-economic rehabilitation are needed to improve the quality of life of residents and maintain and initiate appropriate social activities.

The project tasks identified by the WHC are as follows:

- Definition of World Heritage property
- Shared information system
- Strategic planning and management system
- Conservation and development planning
- Consultations with relevant administrations
- Raising awareness amongst public (UHRC, 2010)

Thus, the recognition of problems and issues in the improvement and rehabilitation of the historic fabric of Cairo can be summarized as follows:

	Problems	Solutions
Cairo (Egypt)	Housing shortages	Rehousing squatters, upgrading housing
	Pollution resulting from changing land-use from residential to commercial	Controlled building regulations, transferral of industrial activities to other areas of Cairo
	Degradation of historic buildings	Reconstruction, some demolition
	High unemployment rates	Involve residents in rehabilitation projects, providing work for them
	Poverty	Improved social facilities, provision of job opportunities
	Illiteracy	Improved social facilities, community centres with classes and activities
	Lack of awareness of the value of historic buildings	Involve residents in rehabilitation
	Socio-economic pressures (e.g. lack of finances for rehabilitation, underuse of touristic opportunities)	Job opportunities through residents' participation in rehabilitation, attracting tourism through restoration and active re-use of monuments
	Poor infrastructure	Redevelopment of housing and sanitation services
	Illegal occupations	Squatters relocated from historic buildings to other areas of the city
	Traffic and transportation issues	Creation of pedestrianised areas, one-way streets and bypasses.

Table 2.6 Problems and solutions for the rehabilitation of Cairo, Egypt; (Source: Author based on Hassan and Chirikure, 2017).

The problems and solution listed in Table 2.6 could be useful for the rehabilitation of Shiraz, since as the cities have similar qualities in terms of religion, culture and architecture, and since many Islamic cities share common problems, the solutions may be useful lessons for the rehabilitation of Shiraz historic fabric.

From the study of Cairo, the lessons that can be learnt are:

- The potential socio-cultural and economic benefits of adaptive re-use
- The participation of residents in rehabilitation can have benefits in terms of local knowledge, as well as improving the socio-cultural and economic life of the area
- Policies need to focus on the historic fabric as a whole, rather than just individual monuments.
- Rehabilitation ought to consider socio-cultural factors as well as physical.
- European rehabilitation strategies are not always compatible with Islamic cities.

2.8 Summarising the types of interventions and decisions based on international experiences of rehabilitation of historical cities

The aim of this chapter was to identify the approach, methods and techniques of rehabilitation that are used in various historic European and Islamic cities. In this regard, section 2.7 of this chapter examined the rehabilitation methods and techniques that were applied in Islamic cities such as Cairo and identified the problems and solutions for rehabilitation of the historic fabric in this city, which could be useful for developing a rehabilitation strategy in Iranian cities, particularly in Shiraz. Table 2.7 presents the different layers of problems in relation to the urban fabric and the solutions used to rectify those problems.

Problems	Solutions
Traffic	Use public transport systems such as train, bus, bicycle, etc. Use of underground routes. Tunnels. Ring around the historic fabric. Separate pedestrians from roads. Identify fast and slow routes. Circular routes around the historic fabric. Construction of multi-storey car parks. Improve local access. Create emergency access.
Physical problems	Demolish old houses and build new houses with modern equipment. Construct complex buildings. Rehabilitation of older and historic neighbourhoods. Repair homes for low-income residents. Demolish old houses and build new houses with modern materials. Construction of broad boulevards, in place of some residential neighbourhoods with high populations. Destruction of adjoining buildings, monuments, and artefacts of historical value. Maintenance and protection of historic streets. Urgent measures to restore the monuments.
Socio-Culture	To encourage residents to participate publicly. To promote laws and governmental regulations, as well as to train employees to create sustainable development. Adopt legislative measures and new measures for land use, appropriate criteria for the repair of old residential buildings within the historical context. Redesigning the historic fabric, in collaboration with residents of these districts.
Residential	Providing appropriate living conditions for artists and intellectuals, in a historical context. Mixing work and living spaces in historical context. To prevent the replacement and removal of the current residents of historic fabric. To accommodate new residents in new buildings, within a historical context.
Functional	To grant new uses of land which does not have a private owner, in order to improve the economic situation in the historic context: commercial, business, education, recreation, sport and tourism (museum, exhibitions, restaurants, etc.). Transfer some uses that aggravate others outside the range of the historical context.
Economic	Developing investment resources. Development of a market, and its improvement. Assigning financial liabilities to renovate urban equipment. Subsidies to the owners and residents of the historic fabric, and their exemption from taxation. Developing local plans for implementation.
Facilities & Equipment	Updated urban facilities and equipment. Creation of a network of water and sanitation facilities. Mobilize pedestrian network within a historical context, into two elements: water and vegetation. Construction of public health facilities within a historical context.

Table 2.7 Summary of intervention and decision-making in the field of rehabilitation of historical contexts; the results of reviewing international experiences, (Source: Author based on Shiraz Municipality Report, 2010).

It is important to realise that in rehabilitation of historic contexts in European and Islamic countries, cities have faced seven major problems, which are presented in Table 2.7. Traffic, urban form, socio-cultural problems, urban development, socio-economic problems and infrastructural problems, all affect the rehabilitation process of historical contexts. Therefore, different countries use different approaches to gain maximum advantage from these factors in the rehabilitation of historic cities which give them the ability to fit the cultural, social and technological conditions and criteria in each country, to provide solutions which address deficiencies within historical contexts.

Since it has often been the case that the experiences of Western countries have been used to rehabilitate historic contexts in Islamic countries, therefore, it is necessary to investigate other effective elements to provide an appropriate model for the rehabilitation of Islamic cities, which are as follows:

- Formation of Islamic cities
- Understanding the different cultural perspectives and traditions of the inhabitants
- The role of religion in the formation of political rules, policies and socio-cultural relationships in the formation of Islamic cities
- Role of political structures

It is evident that analysis of such a study can help us to find a more appropriate urban design method for the rehabilitation of historic cities in Iran. Therefore, it is necessary to develop a logical, conceptual framework to investigate the factors that influence the rehabilitation of the historic context in Islamic cities: the integrated conceptual framework presented in the next chapter. The summary of international experience examined in this chapter is given in Table 2.8.

Subjects	England (Bath)	Europe (Barcelona)	Islamic countries (Cairo)
Approach	**Rehabilitation**		
Methods	Renewal	Regeneration	Regeneration
Techniques	Protection Preservation Decoration Consolidation Transport Strategy Restoration Adaptive Reuse Urban conservation Attracting investment (tourism)	Protection Preservation Gentrification Reconstruction Urban Conservation Restoration Recuperation Connectivity improvement Enhancing quality of life The organization of urban spaces in historical contexts. Reintroducing investment	Renovation Protection Remodelling Transport Strategy Gentrification Demolition & Development Adaptive Reuse Restoration
Actions	Furnishing and decorating public spaces Attention to urban fabric and urban activities Preservation of urban monuments Best use of old buildings Create a new profile for the city Converting monuments to museums Policy Creation Detailed management plans	Public management by the municipality. Development of strategic plans. Use of conventional methods of urban zoning. Balance between urban development and the preservation of historical and cultural heritage.	Preparation of technical, economic, and financial plans. Identification of standards Preparation and execution of local and international tenders required for implementation. Monitoring and supervising the construction, reconstruction and maintenance of infrastructure and buildings. Evaluating progress of plans and detailed programs. Management of funding and budget.

Table 2.8 The usage of different Methods, Actions & Techniques in European & Islamic countries. (Source: Author).

Conclusion

This chapter has answered the question asked in the beginning of the chapter: “What have been the outcomes of rehabilitation interventions in international experience?”

From the analysis of international examples, it can be seen that different countries have applied different methods and techniques, all falling under the heading of rehabilitation, with varying degrees of success.

In Bath, the focus was on the creation of policies for the rehabilitation of the historic fabric, with management plans being extremely detailed. The aims were to keep as much of the historic fabric as possible, while maintaining the character and social function. Adaptive reuse and the attraction of tourists has helped the success of Bath.

In Barcelona, the techniques of reconstruction and restoration sometimes lost the historic validity of buildings but brought economic rehabilitation to the area of Barrio Gotico, by attracting tourists. In El Raval, social rehabilitation was achieved by tackling drug addiction and crime and gentrification, to attract tourists and bring in some economic vitality. Resident participation was attracted through neighbourhood associations in early phases of rehabilitation.

In Cairo, residents’ participation in rehabilitation has the potential to affect physical form, socio-cultural activities, provide job opportunities and improve housing. Adaptive reuse of historic buildings has improved the economic structure by attracting tourists and creating social facilities.

The methods, techniques and actions shown in Table 2.8 could be useful for the rehabilitation of the historic fabric of Shiraz because Bath and Cairo have both experienced rehabilitation within World Heritage protection, like Shiraz, so there are some common elements, such as policies, cultural influence on physical form, etc. Therefore, similar methods and techniques could be applicable to Shiraz too. Cairo’s methods and techniques could be useful for Shiraz because of the mixture of Islamic and pre-Islamic elements to the physical form, which is like Shiraz. Barcelona’s methods and techniques could be useful for Shiraz because tourists were successfully attracted to Barrio Gotico and this strategy may be desirable for Shiraz. El Raval has faced similar social problems to Shiraz’s historic fabric and therefore the actions taken by the local government in Barcelona may be applicable to Shiraz. These methods and techniques will be used to shape the conceptual framework in terms of involving aspects such as religion, politics, economics, socio-cultural issues and physical form in this research.

From analysis of the methods and actions identified for achieving the goal of this research as presented in the introduction chapter, it is necessary to link the methods and techniques that consider residents' needs with attention to the urban assets and potentials. Therefore, it is necessary to present an appropriate theory to make logical connections between the key factors and important components within the process of rehabilitation of historic cities in Iran. An extensive investigation in literature (Islami, Dehghan and Naeini, 2016), identifies that Livelihood Theory connects the historic fabric, residents' needs and key factors, such as religion, politics, economics, socio-cultural factors and physical form.

On the other hand, there is a need to identify factors that contribute to the rehabilitation of historic fabric, of which one Iranian city is investigated as a case study. To achieve this goal, the ancient city of Shiraz is selected, being a historical city with more than a thousand years' history and with great potential in social, cultural, political, economic, religious and spatial morphological factors.

Therefore, this research will establish a conceptual framework for understanding and analysing the main challenges faced in improving the condition of historical districts in Iranian cities, this is presented in Chapter 3.

The outcome of this analysis will help this research to move forward to the next stage which will be the integration of methods and conceptual framework to identify the current challenges in Iranian historic cities with particular reference to Shiraz and choose the best methods for collecting and analysing relevant data in order to present practical recommendations.

Chapter Three: Developing an Integrated Conceptual Framework for Understanding and Analysis of Iranian Cities

Introduction

This chapter develops an integrated conceptual framework to identify, understand and analyse the main challenges in developing rehabilitation approaches for historical districts in Iranian cities. The chapter will also identify the correlation between key factors and players which affect the process of the rehabilitation, in order to create urban design principles for the rehabilitation of historical cities in Islamic countries, and to answer the following research question identified in the introduction:

"How can urban historic fabrics in Iran be rehabilitated with consideration of religious law and the livelihood of residents?"

Moreover, this chapter corresponds to stage one in the methodology discussed in the introduction of Chapter 1, Figure 1.1. Figure 3.1 presents the stages that will be used to identify key factors important for analysing and developing rehabilitation of Iranian historic cities.

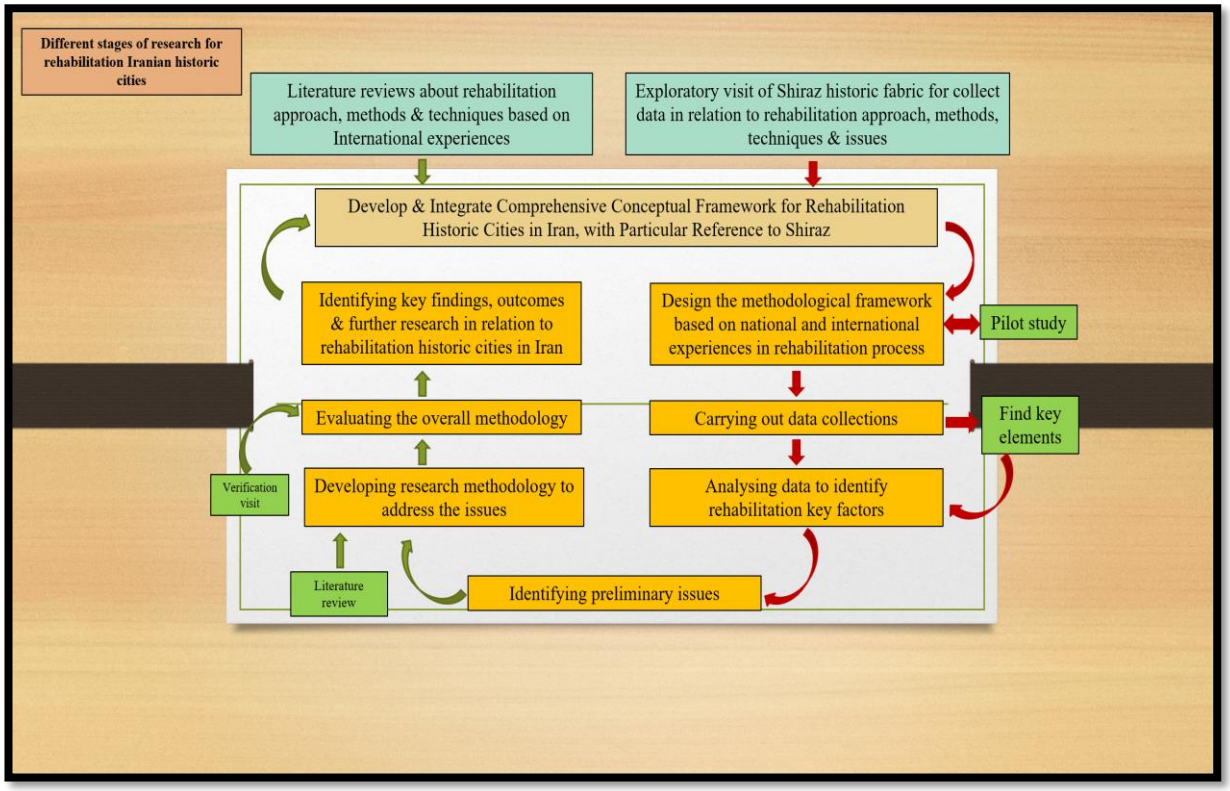

Figure 3. 1 Stages of research for Rehabilitation of Iranian Historic cities, (Source: Author).

The chapter is divided into five sections to develop and integrate the conceptual framework as described in Table 3.1.

Firstly, the strategy of this chapter is introduced.

Secondly, it examines the livelihood theory and its components in connection to a rehabilitation approach. The components are financial capital, socio-cultural capital, physical capital, human capital and natural capital.

Thirdly, it presents an integrated conceptual framework of which the components are religion, politics, economy, socio-culture and urban morphology.

Fourthly, it examines design issues and qualities.

Finally, it proposes an integrated conceptual framework based on urban morphology, livelihood theory and design qualities to be used in the process of rehabilitation.

Developing a conceptual framework for analysing and understanding the key challenges that are currently faced by the historic districts of Iranian cities.		
1	Conceptualised and characterised the key challenges in Islamic cities	Examining definitions and evaluations of the terms, then approaches and principals, and finally dimensions and components.
2	Establishing the interactions	Establishes the interactions between five key challenges such as: Politic, Economic, Religious, Physical Dimension and Social-Cultural elements on rehabilitation historic cities
3	Defines the process and principals	Develop a framework in order to identify a techniques and method for analysing the key challenges in relation to rehabilitation.
4	Developing a conceptual framework	Develop a framework for analysing the key challenges in relation to rehabilitation, and identifies dimensions and key components of the interactions.

Table 3. 1 Stages for developing a conceptual framework for analysing the rehabilitation of historic cities in Iran, (Source: Author).

The review of rehabilitation in international experience, and the exploratory visit to Shiraz, as shown in Figure 3.1, both lead this research to develop a framework for analysing and understanding rehabilitation in Iranian cities. This leads to the need for a methodological framework as shown in Table 3.1.

The chapter also maps out the effects of these elements on the morphological features in Iranian cities. First, a method for examining the history behind the formation of historical areas is explained. The result of the investigations will lead to the selection of two historical districts in Shiraz and the detailed application of the integrated conceptual framework for analysis.

3.1 Chapter strategy

Rehabilitation of historic cities embraces diverse processes which affect people and place in different ways. Bolio Arceo (2012) proposed that place is framed by political, economic, social and cultural dimensions. He believes that it is also an expression of physical, spatial, experiential, relational, religious and symbolic dimensions.

In order to answer the research question, 'How can urban historic fabrics in Iran be rehabilitated with consideration of religious law and the livelihood of residents?', livelihood theory is used to analyse the strategies of households, develop an analytical framework, evaluate early experiences and provisions of guidance to policy-makers and deal with physical urban form (Lloyd-Jones & Rakodi, 2014). Rehabilitating historic cities in Iran is a complex problem owing to the different interest groups involved: the local community, the government and religious and cultural heritage organisations. Therefore, any proposed upgrading requires consultation between all groups.

Furthermore, the political model in Iran is a state-centred one, which is unable co-ordinate key local interest groups and there lacks an integrated strategy (Grindle & Thomas, 1989, Attia 1999, Salheen, 2001). Therefore, it is necessary to find methods which can unify the goals and interests of the residents, local government and religious organisations and link these methods into an integrated approach. The investigation into rehabilitation in international experience shows that in Iranian historic cities, residents' livelihoods and their participation in improving their neighbourhoods has received less attention, unlike in Bologna, where locals and planners developed a rehabilitation strategy collectively and locals participated in the practical rehabilitation of the neighbourhoods (Butina Watson and Bentley, 2007).

However, livelihood is useful for helping social communities and planners to link with each other and increase residents' participation in urban activities and decision making. Therefore, the group of theories and approaches most useful for establishing the correlation between various key factors is a combination of urban design and livelihood theory (as outlined in section 1.5, A, B, C & D). This theory helps to:

- understanding of the needs and the actions of residents;
- identify priorities for development;
- design policies and practical interventions;
- evaluate effectiveness of interventions in improving the quality of residents' lifestyle and the quality of urban spaces

This approach aims to put people and the households in which they live at the centre of the development process; starting with their capabilities and assets, rather than with their problems (Lloyd-Jones & Rakodi, 2014).

The development of the integrated conceptual framework occurs by reviewing literature in four stages:

1. Livelihood theory is reviewed and the interaction between this theory and main practices of urban rehabilitation are identified.
2. Texts regarding historical aspects of society, politics and religion in Iranian cities, particularly Shiraz, are assessed to gain a greater understanding of how development of historic areas relates to cultural values.
3. Literature on the structure of Iranian local governing bodies, again with particular reference to Shiraz, is reviewed in Chapter 5, in order to understand their political and economic influence on historic urban areas.
4. Literature about urban morphology theories and urban design qualities and their links to livelihood theory is evaluated in Chapter 5 to understand how links between culture, economic and political issues, residents' lifestyles and the built physical environment can be maximised and can enable a more integrated method for rehabilitating historic centres in Iran.

3.2 Livelihood theory and its components

Since urban rehabilitation is not just concerned with the physical redevelopment of the urban fabric, but it is also concerned with the social and economic wellbeing of the residents (Karsten, 2015), a theory is needed which supports political, economic, social and physical improvement by focusing on the residents, their skills, knowledge and resources to achieve economic and social sustainability. Chambers and Conway (1992) stated that livelihood theory is able to fulfil these criteria by focusing on five key assets: financial, social, physical, human and natural. Therefore, this theory can support the rehabilitation strategies in areas which lack economic, socio-cultural and physical improvement, which are common in many historic areas.

The concept of sustainable livelihoods was first introduced by the Brundtland Commission on Environment and Development in 1987. Chambers and Conway (1992) further developed this idea by discussing 'assets' and the necessity of them for rural residents to achieve a sustainable livelihood. Scoones (1998) and Carney (1998) further expanded on the idea of assets by defining five 'capitals' - human, social, physical, economic and natural - and that access to these capitals was essential for the creation of sustainable livelihoods. Furthermore, Scoones proposed that analysis should consider the combinations of capitals required for different livelihood strategy combinations (Krantz, 2001; Solesbury, 2003).

The livelihood approach is centred on a sense of community and participation, working from micro level upwards to the macro level (Ashley and Carney, 1999).This research links the capitals of livelihood theory to the five key elements of rehabilitation: religion, politics, economics, socio-culture and physical form. The connections between the capitals and elements of rehabilitation are presented in Figure 3.26, later in this chapter. It also proposes greater participation from stakeholders and actors at all levels of the city, from micro to macro level. Therefore, livelihood theory is appropriate for this research.

It is notable that livelihood theory is most frequently referred to in a rural context. However, Rakodi and Lloyd-Jones (2002) researched the question of whether livelihood theory would be appropriate for an urban context. Nevertheless, in both rural and urban contexts, hitherto livelihood theory has been used in the context of tackling poverty. This research is innovative in its use of livelihood theory by applying it not just to reduce poverty, but to improve the condition of the whole city: both for the physical form and the residents.

Morse and McNamara (2013) wrote that livelihood capital assets have a direct influence on local government policies, as do culture and institutions. However, the policies made can affect the residents' income and threaten their financial and physical well-being as well as their access to food. This is linked to livelihood assets. The main components of a livelihood framework have been approached diagrammatically in Figure 3.2.

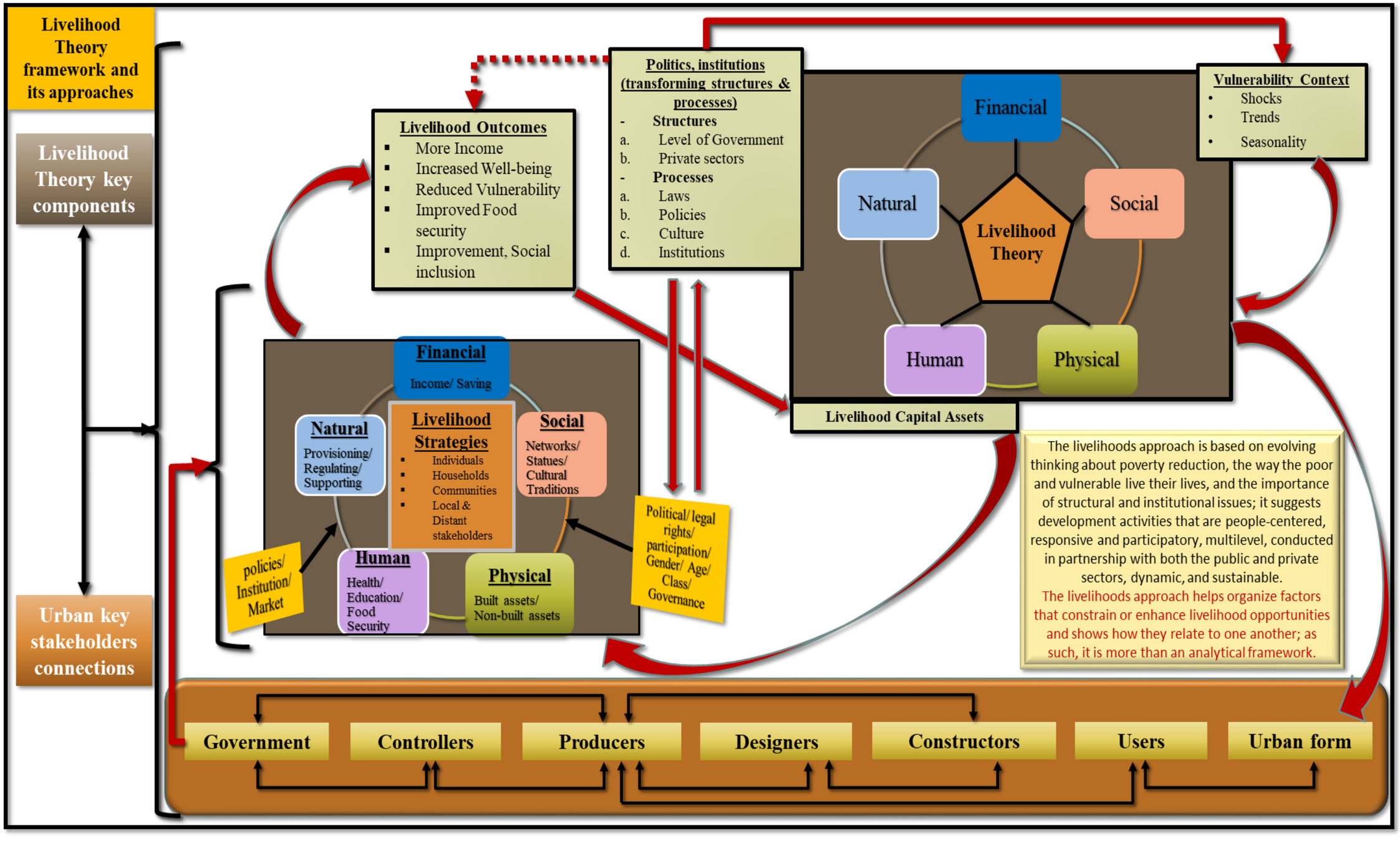

Figure 3. 2 Relationship between key elements related to urban form, (Source: Author)

Figure 3.2 explains how the five capital assets of livelihood theory - financial, socio-cultural, physical, human and natural - connect to livelihood strategies, which in turn have the same five components. These components are connected to the livelihood outcomes and policies, which in turn are connected to the vulnerability context, which is also connected to the urban key stakeholders. Although the intervention of livelihood theory might be inappropriate in whether it portrays the whole of reality, everywhere and always, the question is whether it provides a critical analysis and appropriate actions.

Livelihoods can be understood not only as earning income, but also in terms of gaining and retaining access to resources and opportunities, dealing with risk, negotiating social relationships within the household, managing social networks and institutions within communities. A focus on the livelihood initiatives of urban households and communities helps to highlight the position of human capabilities and the security of society. Rather, the aim of this part is to emphasise the significance of households and communities in urban planning and policy research. It also helps to demonstrate the value of a conceptual framework that recognises socially constructed identities. Another aim is the analysis of links between the workings of smaller units such as urban households and communities and the larger scale economic, social and political processes operating in the city.

The term ‘household’, however, covers a broad range of residential forms (Robertson, 1984). It can be applied simply to co-residence, a task-oriented unit or the site of shared activities. The term households might involve close family, wider kin networks and could embrace unrelated co-residents such as lodgers as well.

Figure 3.2 identified the relationship between the main components of livelihood theory. These connections between the key components are presented in Figure 3.3.

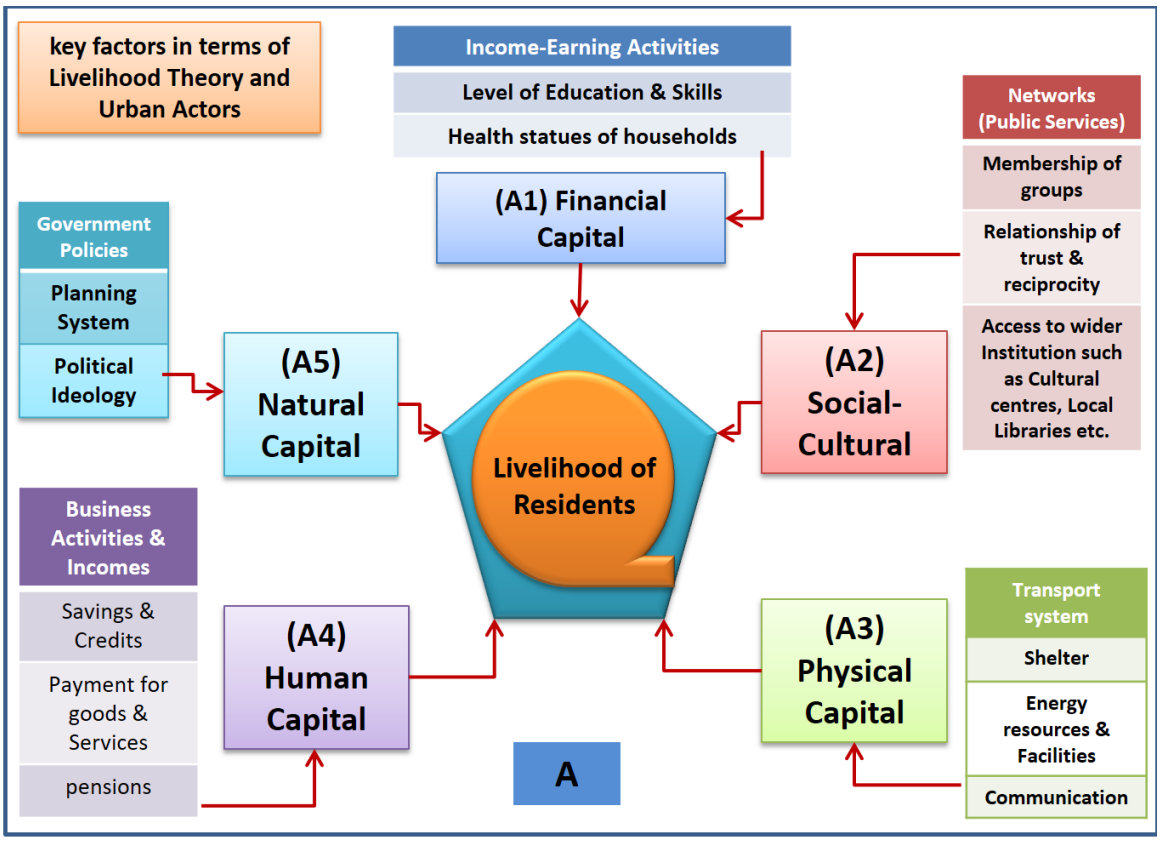

Figure 3. 3 Key elements related to Livelihood; (Source: Author, based on Tony Lloyd-Jones, 1992).

Following the explanation of Figure 3.2, Figure 3.3 shows how the components of livelihood theory are interconnected with five key capitals which affect the process of rehabilitation of historic cities. In recent years, few frameworks have been proposed by conceptualisations of livelihoods which seek to reflect the diversity of ways in which different groups make their living. Also, those frameworks highlighted how policies must build on the existing strengths of livelihood strategies of people to expand their options and choices (Bebbington, 1999; Carny, 1998; Scoones, 1998). Developing an urban livelihood framework for urban areas is complicated by diversity in urban contexts, not only between urban centres.

For instance, in any major city there are many variations between different housing submarkets used by low income groups in terms of the quality of housing, the quality and availability of basic infrastructure and services, the nature of social capital and the accessibility of different income-generation opportunities. Thus, to fully address the issue of poverty, it is necessary to understand how poverty and its effects in the local context impacts local communities.

In fact, it seems quite important to investigate the role of livelihood on residents' lifestyle and survey the impact of residents' lifestyle on quality of urban space and urban formation (Lloyd-Jones & Rakodi, 2014). Thus, the collection and analysis of relevant information will aid identification of practical recommendations for rehabilitation of socio-economic and physical form factors within historic cities. Therefore, livelihood theory is useful for establishing a tailor-made framework for rehabilitation of Islamic historic cities, of which Iranian cities are a part.

3.2.1 Interaction between livelihood theory and methods within the rehabilitation approach

Several methods adopted by Iranians in recent years to achieve a rehabilitation strategy seem to rely on the past experiences of European countries. These methods have been fundamentally built to rehabilitate and restore historical urban tissues and aim to generalize themselves for application in historical cities in Iran. However, insufficient regard has been paid to religious, economic, political and even structural characteristics of Islamic cities. Therefore, it can be claimed that this version of rehabilitation provided by European countries' experiences has been of only limited value to Iranian cities.

To conceptualize the characteristics of key challenges for the rehabilitation of historical cities in Iran, this research has attempted to design a conceptual framework and integrate it with livelihood theory in order to understand better the relation between the key players and elements which affect the rehabilitation of historic cities in Iran. Each of these factors has subdirectories which can have an influence on the process of upgrading, development and rehabilitation of historic contexts. These subdirectories are:

Subdirectories of factors influencing rehabilitation in Iranian cities
Government (Ministry of Housing and Urban Development), which operates under the supervision of the Political-Religious ideology, government religious policies and planning systems. Its main aim is to improve, invest, develop and rehabilitate historic cities.
Controllers (Municipalities, City Councils and Cultural Heritage Organization) associated with Government, Producers and Users, aiming to improve, develop and rehabilitate historic cities.
Producers (Government Investors, Religious Investors and Private Investors).
Designers (Urban Planning Consultants, Architects, Urban Design Consultants and also Civil & Facility Consultants) who are associated with Controllers and Users.
Local residents

Table 3. 2 Subdirectories of factors influencing rehabilitation in Iranian cities. (Source: Author base on Municipality data)

There are also other factors which affect the rehabilitation of historic cities in Iran, such as topography, location, historical background, urban patterns, architectural styles, constructional infrastructures, traffic circulation, and socio-economic environment with regard to the livelihood of residents, which need to be taken into account.

3.3 An integrated conceptual framework

In order to investigate the research question, "How can urban historic fabrics in Iran be rehabilitated with consideration of religious law and the livelihood of residents?" this section analyses the key challenges that are faced by historical districts in Iranian cities.

3.3.1 Assessment of key challenges facing Islamic cities

Rehabilitating historical cities is influenced by both external factors and the result of local practices. Therefore, the process of rehabilitation is closely related to external and internal interactions and consequently, contributes to the physical form (Falamaki, 2005). Moreover, these components should be considered as permanently undergoing change over time.

According to Lapidus (1969) and Bianca (2000), the morphological patterns in Islamic cities have organic structure fundamentally different from Western patterns. With organic growth, rather than modernisation, they are capable of growing without ever losing their essential qualities. The values, characteristics and influential forces of traditional urban form in Islamic cities can be summarised in Table 3.3.

Traditional Urban Form in Islamic Countries	
Influential forces	**Values & Characteristics**
• Division of social hierarchy • Ethnic migration • Religion • Concept of un-owned land • The right of precedence • Privacy • Islamic law of inheritance	• Spontaneous urban pattern • Urban structure as protective shields • Environmental economics • Compact with mixed land uses • Multifunctional core structure • Narrow alleyways • Repetition of cellular clusters • Community facilities

Table 3. 3 The traditional urban form components in Islamic cities. (Source: Author, based on Bianca, 1982).

Therefore, built form can be seen as being generated through buildings and roads and being part of the general culture. Moreover, Lamsal (2012) and Giddens (1984) stated that in structuration theory social systems are formed and reproduced by both structure (rules and resources) and agents (human action). This theory allows the identification of key factors involved in the process of urban rehabilitation, as well as their functions, roles and interests. Hence, to achieve structuration, the following sections discuss the key factors and interactions between them, which are:

- Religion
- Politics
- Economics
- Socio-culture
- Urban morphology

Each of these is discussed in turn.

3.4 Religion

Religion is one of the key factors in shaping Islamic cities. According to Braude (2018), Iranian historic cities are a place for people with different religions, including Islam, Judaism, Christianity and Baha'i. The national religion in Iran is Islam, with most of the population identifying as Shia and the nation is an Islamic republic with an Islamic government. In the process of rehabilitation, it is important to consider those religions in terms of politics, socio-culture and urban activities. Figure 3.4 presents the religious compositions in Iran. Therefore, this research focuses solely on the Islamic policies and the effects of those policies on urban development and rehabilitation. For further research, it is important to identify policies to consider minority religions in order to rehabilitate the zones areas established by them in history.

Figure 3. 4 Religious composition of Iran (Source: Braude, 2018).

3.4.1 Religious policies

Islamic law is traditionally based on social activities originating from positive rules. Accordingly, social values in Islam can be considered as factors capable of shaping, planning and regulating the urban built environment of Muslims. This was the case in the traditional Islamic built environments, whose features embodied and were influenced by the social principles of its inhabitants. The environment worked based on a shared lifestyle and models which were accepted in Islamic policy for urban pattern and buildings (Akbar, 1989). Therefore, the research must first concentrate on the connection between Islamic ideology and urban structure, where urban identity and urban structure will be discussed.

3.4.2 Religion and urban form

Regarding the official authority of a Muslim's role in the built environment, Michon, (2008, p.32) states that 'The Qur'an, laws are the final role of a Muslim, creates a necessary condition which fulfils the law and protects its application'. If the authority introduces a building legislation or planning policy, the legislation should be conducted and directly derived from Islamic laws (Mortada, 2003). Islamic cities are organised by social relations that are based on religious values. In other words, Islamic cities are manifestations of Islamic civilization, which has a specific place identity and special cultural and historical factors which affect it. In these cities, the inherent relationship and the overall structure between religion and an urban built environment can be seen in Figures 3.5 and 3.6. The relationship between culture and the physical environment affects the process of development and formation of cities. Other factors influencing how cities are established include military, religious and economic considerations (Kheirabadi, 2000).

3.4.3 Religion and identity: Gender Segregation and the Arab-Islamic City Form

Perhaps one of the most important elements of the structure of a city determined by Islam is the creation of male and female territories that were visually distinct or isolated areas as well as physically distinct. The aim was not only to prevent physical contact but also to protect visual privacy. Thus, Islamic law regulated the placement of windows and the heights of adjacent buildings to safeguard visual privacy; architecture assisted this process. Devices made of Mashrabiya (lattice wood) screening and the layout of houses and even of entire districts, meant that women could see men, but men could not see women, except those in certain relationships with each other (Figure 3.5).

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the thesis due to copyright restrictions

Figure 3. 5 Architectural approach to Islamic law and principals for designing houses and it connections with public spaces (Source: AA School of Architecture Projects Review 2011).

In this regard Figures 3.6, 3.7 and 3.8, present the main concepts of architectural design in Islamic cities.

Figure 3. 6 Layers of privacy in traditional Muslim Homes. (Source: Bahammam, 1987).

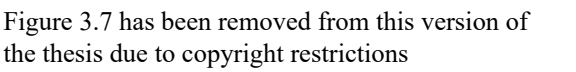

Figure 3. 7 Ground floor plan of typical Muslim home in Diyarbakir, Turkey. (Source: Othman, Aird, and Buys, 2015).

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Figure 3. 8 Traditional Islamic window height guidelines in Islamic cities. (Source: Hakim, 1986).

The issue of privacy, particularly women's privacy, is a major concern in the teachings of Islam. Keeping a clear separation between private and public life is the most significant social characteristic of Islamic culture. Hence the family has the right to live in enclosed surroundings, such as a house, (Figure 3.6 and Figure 3.7). In the teachings of the Qu'ran, which reflects the great value of privacy and distinguishes between private and public life, it is not recommended to use roads for public meetings (Figure 3.9) (Altman & Chemers, 1980).

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Figure 3. 9 The privacy guidelines in Islamic cities. (Source: Altman & Chemers, 1980).

Since it is a religious principle, the privacy of the individual and that of their family should be maintained in both houses and neighbourhoods alike. This was successfully achieved in the traditional environment which provided outdoor spaces and streets which were in a hierarchical but integrated form and order (Hakim, 1994). Main roads started from the centre of a quarter where the highest level of public life occurred. They gradually diminished in size and changed in character, form and function, from public to semi-

public and eventually there were private patios for house access only (Figure 3.10), (Kanbar, 1984).

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Figure 3. 10 The hierarchy of privacy in the traditional Islamic house together with its surroundings. (Source: http://catnaps.org/islamic/approach2.html).

This led to many Islamic cities following specific models of architecture (Abdel Samad Ziad, 2007).

The social dimension of identity falls under a higher and more common level in a general concept named “public identity” which encompasses parts of social life where one applies the pronoun “we” to refer to that identity and feels answerable to it.

It is the recognition of the social dimension of identity which leads us towards religious and national identities, which are considered one of the most important kinds of identity (Jacobson, 2006). It is important to note that Muslim identity is formed on the basis of Islamic ideology and is to be found throughout the community. Accordingly, Islamic ideology has had a significant impact on many aspects of cultural, social, economic and urban structure in a way that cannot be ignored in the process of rehabilitating historical environments.

National identity is a process of a nation's conscious reply to questions about itself, the past, quality, time, belonging, main and permanent origin, civilization, political, economic, and cultural position and important values of its historical identity (Kabasakal, and Dastmalchian, 2001). Islamic ideology is concerned with relationships between men and women, and the spaces required for each one within an urban area. Such concerns are likely to have an impact on the formation, development and transformation of urban spaces, socio-cultural interactions and the architectural design of residential spaces. On the other hand, the role of buildings with public functions such as mosques, public baths, bazaars and schools, and the law of privacy for semi-private and private spaces, are other major factors that affect the construction of Islamic cities, and will play a significant role in the process of rehabilitating historical cities (Falamaki, 2005).

In this section, according to the definition provided above, the proposed role of religion and its relationships with other key and fundamental components within Islamic cities which are important in terms of the rehabilitation process, are described in more detail.

3.4.4 Urban land use

The Islamic concept of 'Ummah' determines the land use pattern of the environment. Members of society have equal rights to the use of public religious and commercial spaces. Traditionally, land use distribution emphasised social integration, which enhanced the sense of community and there was no need for a traffic system, which might disturb the integrity of the community (Mortada, 2003). However, segregation exists between land uses, due to the separation between public and private realms, which was reflected in the Islamic concern for privacy in residential quarters (Hammudah, 1985).

The key land uses in Islamic cities are:

- Mosque or Grand Mosque
- Bazaar
- Public Baths
- School
- Residential areas
- Palace (Arg)
- City wall

Sharifi and Murayama (2013) state that the structure of Islamic cities includes Grand Mosques (Friday mosques); neighbourhood mosques which are smaller and more localised; the main bazaar and its branches within residential areas (bazaarcheh); public baths located close to the Grand Mosque, and smaller public baths within residential areas. Community mosques also have a social function, due to their proximity to leisure spaces, such as the baths; an educational function, due to the madrasas, an Islamic place of learning; an economic function due to their proximity to bazaars and a political function as places of discussion and influence, which were even instrumental in the Iranian Revolution of 1979.

Figure 3.11 shows how community mosques and other elements are connected. The following sections discuss the principles of planning and design of the main land-uses of the Muslim urban environment.

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Figure 3.11 Functional zoning in Islamic cities in relation to the Mosque (Source: Alizadeh and Irandoost, 2017).

3.4.5 Religion and commercial necessities accessible to inhabitants

Islam recognises that people have certain needs, such as food, which are necessary for life support (Maslow, 1943). Mortada (2003) refers to Ba Kader (1989), in saying that residents should have equal access to daily products in the built environment. Hakim (2013) claims that there are several 'hadiths' or sayings in which the Prophet gives explicit injunctions to affirm this. It also addresses the Islamic aim of social well-being and reflects the concepts of 'masalih' or social benefits.

In such an environment, bazaars were situated in the centre of the city while smaller markets and shops penetrated the residential quarters. This made it easier for inhabitants to acquire their daily shopping needs without difficulty (Kheirabadi, 1991). Therefore, an important factor for rehabilitating Shiraz will be an analysis of these aspects in relation to rehabilitating historical cities.

3.4.6 Commercial necessities close to Mosques

The location of bazaars near mosques has a practical function. It is the mosque that Muslims go to several times a day for praying. Thus, locating bazaars or shopping centres near the mosque will make it possible for people to purchase their commodities on their way to and from the mosque. Traditionally, locating marketplaces in a city centre or around the Friday mosque was socially and functionally ideal as the centre was the place where optimum opportunity for social exchange was provided. In other words, the marketplace had become a medium for strengthening social ties between the residents of the community (Al Hathloul, 1980).

3.4.7 Residential clusters (cul-de-sacs and adjoining houses)

The compact form of residential areas of the traditional Islamic environment succeeded supported the Islamic principles of social interaction. Hassan (1972), argued that the reasons for the establishment and growth of traditional Islamic cities can be divided into two groups; A) cooperation and proximity between people, which caused houses to be built close to each other and limited the size of the neighbourhood blocks; B) the required social closeness to achieve contacts within walking distance. Muslim families tend to live in close proximity, or in building clusters, sharing a private courtyard as presented in Figure 3.10. All this led to the creation of urban compactness in the residential area. This was demonstrated in adjoining houses and close clusters that were elements of the architectural norm of the early Islamic period. The result was the construction of an environment consisting of a solid built volume in which hollows and lanes had been designed as part of the urban design system (Hakim, 2013).

In traditional Iranian cities, people of similar interests or backgrounds were clustered together in their own neighbourhood for the creation of comfort, protection and greater social groupings. However, since the arrival of modernism, this pattern has changed. Many residents have left the historic core due to dilapidation of buildings, which allowed the immigration of others from non-Fars ethnicities, who had less cultural connection to the historic fabric. Therefore, the identity of place and residents was altered. The division of neighbourhoods was based on differences in ethnic, religious or professional backgrounds, or town or village of origin of its residents. Thus, the neighbourhoods were a spatial residential cluster of members of a particular ethnic group within the city. Segregation of neighbourhoods based on differences of religious beliefs, can be seen in Jewish neighbourhoods in Isfahan and Shiraz, and Zoroastrian neighbourhoods in Kerman and Yazd (Kheirabadi, 2000).

3.4.8 Streets of functional width

According to experts in Islamic law, the width of streets comes under the Islamic concepts of ‘Masalih’ or social benefits. This means that the width of the road is determined by its function in both the city and residential areas (Mortada, 2003). Mortada (2003) stated that based on the Quran the measurement of the roads should be at list 3.2 meters and, should be wide enough to accommodate its use and serve the community. For example, in Medina the secondary roads did not exceed 2 metres and public roads did not exceed 4 metres. Figure 3.12 shows how different streets in different historic cities follow the same principles.

Figure 3.12 Different types of Streets and their functions in Islamic cities (Sources: Google Image).

3.4.9 Block and Plot pattern

Plot pattern is the division of land into individual plots or blocks and the position of the buildings within the plots. The direction of the plots follows the direction of the mosque, which faces towards Mecca, Saudi Arabia. The most common pattern of the plots in Islamic cities are mixed-use residential, commercial and religious with courtyards.

Figure 3.13 shows the arrangement of plots at block level, house level and rooms and spaces within the individual houses, in Hamamet, Tunisia.

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Figure 3. 13 Different levels of urban morphological elements in Hamamet, Tunisia. (Source: https://www.slideshare.net/iramaziz/islamic-principles-for-cities).

Based on Islamic policies and social aspects, the strong desire for privacy and tranquillity in residential units led traditional Iranian cities to evolve into three major space types: public, semi-private and private.

The bazaar complex was traditionally where all public and social activities took place, while the residential zone was the private section of the city, where a peaceful atmosphere prevailed (Ardalan & Bakhtiar, 1979). The entire city was 1043 households per square kilometre in Cairo (Egyptian census 2006); the bazaar and residential areas were so

physically integrated that the study of one, as an independent physical entity separate from the other, is nearly impossible.

3.4.10 Mosques accessible by walking

The mosque is the place of 'Salat' or prayer, one of the five pillars of Islamic principles, and the supreme act of submission to God. The ideal use of a mosque was in the traditional Muslim environment, which was used as a multi-purpose space, serving for prayers and congregation for studying the Qur'an, for political decision making, and as a place to rest (Qutub, 1990).

In this section it is necessary to define the role of mosques, and their function and location within Iranian cities. The mosque was introduced to Iranian cities by Arab Muslims in the seventh century AD. Primarily used as the main place of communal worship and prayer, the mosque later became the symbol of a Muslim city. During the first few centuries of Islam, a piece of land without a major mosque was not considered to be a city (Gibb & Kramers, 1953; Behnejad, Mottaghi Rad,and Jamili, 2012). In traditional Iranian cities, the Grand Mosque became the focal point of the bazaar. Hence, the Grand Mosque is home to everyone. Such a complex institution, serving religious, political, social and educational purposes becomes physically integrated with the texture of the city (Ebrahimi, Rahimian and Loron, 2013). In this regard, mosques are key in connecting all parts of the historic fabric and strongly influence economy and politics in the historic urban fabric (Figure 3.14).

Figure 3.14 The Grand (Jameh) Mosque as a focal point of a Bazaar in Iranian historic cities, (Source: Ebrahimi, Rahimian and Loron, 2013).

Islam requires Muslims to pursue knowledge and education throughout their life. The built environment of Muslims plays a vital role in fulfilling this obligation. This means that equal and proportional distribution of educational facilities, such as madrasas, must be considered in Islamic residential areas. Relating this distribution to the population density provides the inhabitants with equal access to these facilities. The traditional location of schools adjacent to mosques not only signified the religious and social role of education, but also supported the principle of equitable distribution of educational facilities. Therefore, residents could access all their amenities by walking, and only needed to mix with other residents of their districts, who were of similar backgrounds. So, the key aspects of religion to be taken to the conceptual framework are the importance of Islamic law on the shaping of the urban environment, the importance of accessibility to the mosque and educational facilities from the other urban areas and accessibility to commercial necessities.

3.5 Political factors of Islamic cities

The political structure of Iran is unique from other Islamic countries. However, this section will discuss political factors in Islamic cities. The political structure of Iran is presented in Appendix 9, which shows the hierarchy of departments governing cities and the role and position of people within that hierarchy.

Based on Islamic ideology and policies, the study of the theory of political economy emphasises the role of capital in politics and policy making. Urban political economy focuses specifically on the relationship between local governments, and local and global capital. However, the behaviour of cities, states and other nations as well as the actions of national and international capital has a significant impact on this relationship (Judge, Stoker & Wolman, 1995).

Political support for urban rehabilitation is certainly crucial and can be considered a prerequisite for any substantial programme. However, in many instances the political commitment is lacking or very difficult to obtain, and even the efforts of international and national heritage organisations have not been able to generate such support. The truth of the matter is that the policy for rehabilitation cannot be separated from the policy of change and redevelopment (Steinberg, 1996). The purpose of this section is to describe the issues involved in relation to rehabilitating the historical environment of Iranian cities, which is affected by political aspects.

3.5.1 Political ideology of Islamic cities

It has been argued above that policy is a principle or rule to guide decisions proposed by a local or national government and achieve rational outcomes which are based on Qur'an and Islamic policy and tradition. Policy is a statement of intent, and implemented as a procedure or protocol, which is established by a government. The board of advisors or senior governing body generally adopts policies within an organization, whereas procedures or protocols would be developed and adopted by senior executive officers. In Islamic ideology based on Islamic law, policies can assist in both theoretical and practical decision making (Afary and Anderson, 2010).

Policy differs from rules or law. While law can compel or prohibit behaviours (e.g. a law requiring the payment of income tax), policy merely guides actions toward those that are most likely to achieve a desired outcome, which is important for identifying the differentiation between these aspects to establish the practical policy for the rehabilitation of historic cities (Nakamura, 1987). Presidential executive orders, corporate privacy policies, and parliamentary rules of order are all examples of policy which will affect the decision making in relation to rehabilitating historical environments.

Policies can be understood as political, managing, financial, and administrative mechanisms arranged to reach explicit goals (Young & Mendizabal, 2009). Examining these aspects will help this research identify the key components within urban policy and the political system in relation to rehabilitating historical cities in Iran. Therefore, this section aims to identify and analyse political key components, which will be presented in the next stage.

3.5.2 Policy Typologies

Policies may be classified in many ways. Table 3.4 is a sample of several different types of policies broken down by their effect on members of the organisation. This leads this research to identify the structure of decision makers within the government and their roles; it can also identify different policy aspects in order to establish a comprehensive policy for rehabilitating historical cities in Iran. To achieve this, some political aspects that affect the process of rehabilitating historical cities need to be examined (Feltus, 2008).

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Table 3. 4 Policy typology, (Source: Feltus, 2008).

Policies are dynamic; they are not just static lists of goals or laws. Policy blueprints must be implemented, often with unexpected results. Social policies are what happens 'on the ground' when they are implemented, as well as what happens at the decision making or legislative stage.

When the term “policy” is used, it may also refer to:

- Official government policy
- Broad ideas and goals introduced in political manifestos and pamphlets
- The policies of a company or organization on a particular topic. (Greenberg et al., 1977).

All these policies are important in Islamic law because they benefit all members of society, which is an important principle of Islam, as explained in section 3.4. These policies are therefore important for Islamic cities to achieve high quality urban areas, social activities for women and men and connectivity between neighbours and neighbourhoods with key infrastructures such as mosque, bazaars, baths, and schools.

Some policies applied to Iranian cities are listed as follows:

Policies applied to Iranian cities
The legal Act for calculating overhead expenditure and provision of infrastructures and services for preparation of urban land by the Urban Land Organisation (July 16, 1980).
A blueprint for recognition of the basis of master plans (March 14, 1985).
Zoning regulations and housing densities and the utilisation of urban land in urban development plans (February 8, 1986). These regulations were modified in 1988.
Regulations for preserving the limit and land along transportation routes within the green belt around cities (May 22, 1989).
The necessity of agreement of the preparation plans with master plans and development plans (July 24, 1989).
Measures and regulations for urban facades (November 19, 1990).
Measures and regulations for the provision of public spaces and urban services (December 24, 1990).
Measures and regulations for increasing urban densities and urban consolidation (January 14, 1991).
Building and planning measures and regulations for the period the Master Plans are under preparation (December 30, 1991).
A new procedure for changing the use of allocated lands for educational purposes (April 20, 1992). According to this, allocated lands for schools cannot be altered without the permission of the Minister of Education and Training.
Measures and regulations for the protection of neighbourhood rights in different housing zones (May 4, 1992).
Regulations for permitting owners to develop their own lands which have already been allocated for urban projects (September 7, 1992). Under these regulations, owners are permitted to develop or redevelop their properties (under certain conditions) which are allocated for public usage, if their properties are not required by public departments within 18 months after the plan has been approved.

Table 3. 5 Policies applied to Iranian cities, (Source: Author based on Shiraz Municipality data).

Therefore, for the rehabilitation of historic cities, a mechanism is needed to unite different policies described above. Thus, the conclusion of this research will present a set of urban design and urban development policies in chapter 8, based on the integrated conceptual framework and methodology, which will help this process in Iran. So, in terms of policies the conceptual framework needs to address how policies are influenced by Islamic law.

3.6 Urban Economics

Urban economics is the economic study of urban areas. It involves using the tools of economics to analyse urban issues such as crime, education, public transport, income, housing and local government finance. It is considered as a branch of microeconomics that studies urban spatial structure and the location of households and firms (Quigley 2008).

Many spatial economic topics can be analysed either within an urban or regional economic framework since some economic phenomena primarily affect localized urban areas, while others are felt over much wider regional areas (McCann, 2001). O'Sullivan believes the following aspects of urban economics: market forces in the development of cities, land use within cities, economic policy, urban transport and housing and public policy (O'Sullivan, 2003).

3.6.1 Market forces in the development of cities

Market forces in the development of cities relates to how the location decision of businesses influences the development of cities (McCann, 2001). Conversely, market performances are affected by the urban conditions, i.e. whether a city is densely populated or geographically isolated. By investigating these factors urban economists can analyse the location and growth of cities, the causes of economic growth and decline and how local governments affect urban growth (O'Sullivan 2003:14) Models and techniques developed within the field are primarily designed to analyse phenomena that are confined within the limits of a single city (McCann, 2001).

3.6.2 Land use

By examining urban land use, the urban economist seeks to analyse the spatial organisation of activities within cities. In attempts to explain observed patterns of land use, the urban economist examines the intra-city location choices of businesses. Considering the spatial organisation of activities within cities, urban economics addresses questions on what determines the price of land and why those prices vary across space, the economic forces that caused the spread of employment from the central core of cities outward, identifying land-use controls, such as zoning, and interpreting how such controls affect the urban economy (O'Sullivan 2003).

3.6.3 Economic policy

Economic policy is often tied to urban policy (McCann 2001). Urban problems and public policy are tied into urban economics as the theme relates to urban problems, such as poverty or crime, to economics by seeking to answer questions with economic guidance. For example, does the inclination for the poor to live close to one another make them even poorer? (O'Sullivan 2003).

3.6.4 Transport and economics

Urban transport is a theme of urban economics because it affects patterns of land use, as transport affects the accessibility of different sites. Issues that tie urban transport to urban economics include the deficit of transport authorities, and questions of efficiency about proposed transport developments such as car accessibility (O'Sullivan 2003).

3.6.5 Housing and public policy

Housing is a unique type of both livelihood and commodity. Because housing is immobile, when a household chooses a dwelling, it is also choosing a location. The location choices of households in conjunction with the market effects of housing policies is analysed by urban economists (O'Sullivan 2003:15). In analysing housing policies, we make use of market structures. There are, however, problems encountered in making this analysis such as funding, uncertainty, space etc.

3.6.6 Islamic economics

Islamic economics refers to the economic system that conforms to Islamic scripture and traditions. The central features of an Islamic economy are summarized as the following:

- Zakat - the "taxing of certain goods, such as harvest, with an eye to allocating these taxes to expenditures that are also explicitly defined, such as aid to the needy."
- Gharar - the interdiction of chance (prohibition of gambling) ... that is, of the presence of any element of uncertainty, in a contract (which excludes not only insurance but also the lending of money without participation in the risks).
- Riba- referred to as usury (modern Islamic economists reached a consensus that Riba is any kind of interest), (Roy, 1994, p. 132; Addas, 2008)

To reduce the gap between the rich and the poor, Islam encourages trade, discourages the hoarding of wealth and outlaws usury. Therefore, wealth is taxed through Zakat, but trade is not taxed. Usury allows the rich to get richer without sharing in the risk. Profit sharing and venture capital where the lender is also exposed to risk are acceptable. Hoarding of food for speculation is also discouraged and seizing other people's land is also prohibited (El-Gamal, 2006). These concepts came from the prescriptions, anecdotes, examples, and words of Muhammad, gathered and systematised by commentators according to an inductive, casuistic method. Sometimes other sources such as al-urf (custom), al-aql (reason), or al-ijma (consensus of the jurists) were employed (Shirazi, 1997).

In addition, Islamic law has developed areas of law that correspond to secular laws of contracts and torts. During the medieval Arab Agricultural Revolution, a social transformation took place as a result of changing land ownership, giving individuals of any gender, ethnic or religious background the right to buy, sell, mortgage and inherit land. Based on the teaching of the Qu'ran, signatures were required on contracts for major financial transactions concerning agriculture, industry, commerce and employment. Both parties involved usually kept copies of the contract. These Islamic policies are necessary to understand so that they can be addressed in developing a rehabilitation strategy for Shiraz, by understanding the connection land-use, economy and Islamic policies. Islamic jurists have argued that the privatization of resources of oil, gas, and other flammable fuels, animal pasture and water are not allowed (Boulakia, 1971). In relation to spatial structures the following aspects are important:

3.6.7 Property

The Qur'an states that God is the sole owner of all that is stored in the heavens and the earth. However, Man is God's vicegerent on earth and holds God's possessions in trust (amanat). Properties divide Islamic jurists into public, state and private categories (Nomani & Rahnema, 1994). Hence, properties can be categorized in three major groups within Islamic cities, which are as follows:

A. Public property

Public property in Islam refers to natural resources (forests, pastures, water, mines, oceanic resources etc.) to which all humans have equal right of access. Such resources are considered the common property of the community and are placed under the guardianship and control of the Islamic state. They can be used by any citizen, as long as such use does not undermine the other citizens' rights (Nomani & Rahnema, 1994).

B. State property

State properties include certain natural resources as well as other properties. However, privatisation for both of those mentioned above is not practical. Islamic state property can be movable, or immovable, and can be acquired through conquest or peaceful means. Unclaimed, unoccupied and heir-less properties, including uncultivated land (mawat), can also be considered state property. Grand mosques and some hospitals come under this category (Bakhash, 1984).

C. Private property

Islam recognises and upholds the individual's right to private ownership. The Qur'an extensively discusses taxation, inheritance, prohibition of stealing, legality of ownership and giving to charity. Islam also guarantees the protection of private property by imposing stringent punishments on thieves. Muhammad said that he who dies defending his property has died the death of a martyr.

Islamic economists classify the acquisition of private property into involuntary, contractual and non-contractual categories. Involuntary means are inheritances, bequests, and gifts. Non-contractual acquisition involves the collection and exploitation of natural resources that have not been claimed previously as private property. Contractual acquisition includes activities like trading, buying, renting, hiring of labour etc. (Nomani and Rahnema, 1994)

D. Traditional economic formation

The relationship between location of cities and ancient trade routes and the role that political leaders have played, is theoretically bound up in the formation and development of Iranian cities. Thus, the Bazaar is the heart of the traditional Iranian city. Several main questions are dealt with here:

- How did small, agricultural settlements develop into commercial towns and cities?
- How was the bazaar developed, and why did it become the core of the city?

How does the bazaar function within traditional Iranian cities?

E. Markets

Islamic teaching holds that the market, given perfect competition, allows consumers to obtain desired goods and producers to sell their goods at a mutually acceptable price. Three necessary conditions for an operational market are said to be upheld in Islamic primary sources:

- Freedom of Exchange
- Private ownership
- Contract Security

Islam promotes a market free from interferences such as price fixing, hoarding and bribery and prohibits price fixing by a dominating handful of buyers or sellers. The Islamic market is characterised by freedom of information. Producers are expected to inform consumers of the quality and quantity of goods they claim to sell. Some scholars hold that if an inexperienced buyer is swayed by the seller, the consumer may nullify the transaction upon realising the seller's unfair treatment. The Qur'an also forbids discriminatory transactions. Government interference in the market is justified in exceptional circumstances, such as the protection of public interest (Nomani & Rahnema, 1994). Therefore, the conceptual framework needs to address Islamic economic concepts and Islamic concept of property, market forces and land-use and economic policy.

3.7 Socio-cultural Factors

In this section, the role of socio-cultural factors within Iranian communities is examined. This is important because according to Kheirabadi (1991), Iranian historic cities traditionally formed around social and political elements. The palace also served as a citadel and was the seat of the chief of police and the king’s representative, and the army practiced there. The bazaar, the citadel and the grand Mosque were all connected. Each city had a public square, often at the entrance of the bazaar, with smaller public squares in each neighbourhood. These served as social spaces and had particular significance in religious, political and traditional events. The public baths were also social spaces and were often located close to major mosques, as well as in each neighbourhood. Furthermore, socio-cultural factors traditionally played a major role in shaping cities, since neighbourhoods were formed from clusters of people of the same religion, social background, trade or country of origin.

Examples include: goldsmiths' and ironsmiths' neighbourhoods (in Sabzivar); Jewish (in Isfahan) and Zoroastrian (in Yazd) neighbourhoods, and Arab, Turk and Armenian neighbourhoods (in Tabriz). Further details of these socio-cultural factors are presented in Chapter 5 of this research.

Lawless and Blake (2016) note that the bazaar in Islamic cities was a place where people mixed in one place, who would otherwise have been separated by class, religion or trade divides. To achieve this examination, it is necessary to introduce different aspects of socio-cultural dimensions, which are based on cultural anthropology. Cultural anthropology is a branch of anthropology focused on the study of cultural variation among humans, collecting data about the impact of global economic and political processes on local cultural realities (Johnson, 2003).

Two primary meanings of culture emerge from the early Islamic period: culture as the folk spirit, having a unique identity, and culture as cultivation of waywardness or free individuality.

The first meaning is predominant in our current use of the term "culture," although the second still plays a large role in what we think culture should achieve, namely the full "expression" of the "authentic" self (Velkley, 2002). Aspects of human expression include both tangible and intangible elements. These include:

- Language and education
- Religion
- Immigration and gender roles
- Recreational activities such as Islamic traditional festivals
- Commercial practices
- Social structure

It is worth noting that the other aspect, which strongly affects urban rehabilitation, is 'place-identity'. The concept of place-identity was developed to acknowledge the relevant place in the self-identity construction, and is fundamental for supporting environmental physiology (Hauge, 2007). However, because place-identity is a vast topic, it falls outside the remit of this thesis.

3.7.1 Socio-spatial interactions

Having characterised the socio-cultural factors in historic fabrics, this section establishes a theoretical framework for socio-spatial interactions between people and urban transformations. Through the literature review undertaken in Chapters 1 and 2, several urban actors were identified. These urban actors include planners, controllers, politicians, designers and constructors. Urban actors are responsible for many urban transformations, although some occur organically, without human intervention (Falamaki, 2005; Bandarin and Van Oers, 2014; Rodwell 2003; Hakim, 2013; Kujala et al, 2012).

Socio-spatial interactions are the interactions between people and the built environment (Hutchison, Ryan and Gottdiener, 2014). Examples of socio-spatial interactions include living, working/studying, shopping, leisure, worship and religious and traditional festivals. In addition to tradition, religion in the form of Islam, is the backdrop against which most people live out their lives in Iran, as explained earlier. People's lifestyles are important to understand in terms of livelihood of residents as explained in section 3.2. Also, it is important in terms of Islamic law and approach to the family and their connections to Islamic society. Therefore, this research needs to address this concept.

However, the residents' socio-spatial interactions, that is their daily lifestyles, are affected when urban transformations are executed. In this regard, Figure 3.15 presents urban transformations and their effects on socio-spatial interactions. It shows how urban actors are responsible for some of these transformations (religious and socio-economic transformations, however, tend to occur organically), how these transformations affect socio-spatial interactions and the daily activities of the residents. In so doing, this section infers the importance of residents' participation in the development of a rehabilitation strategy.

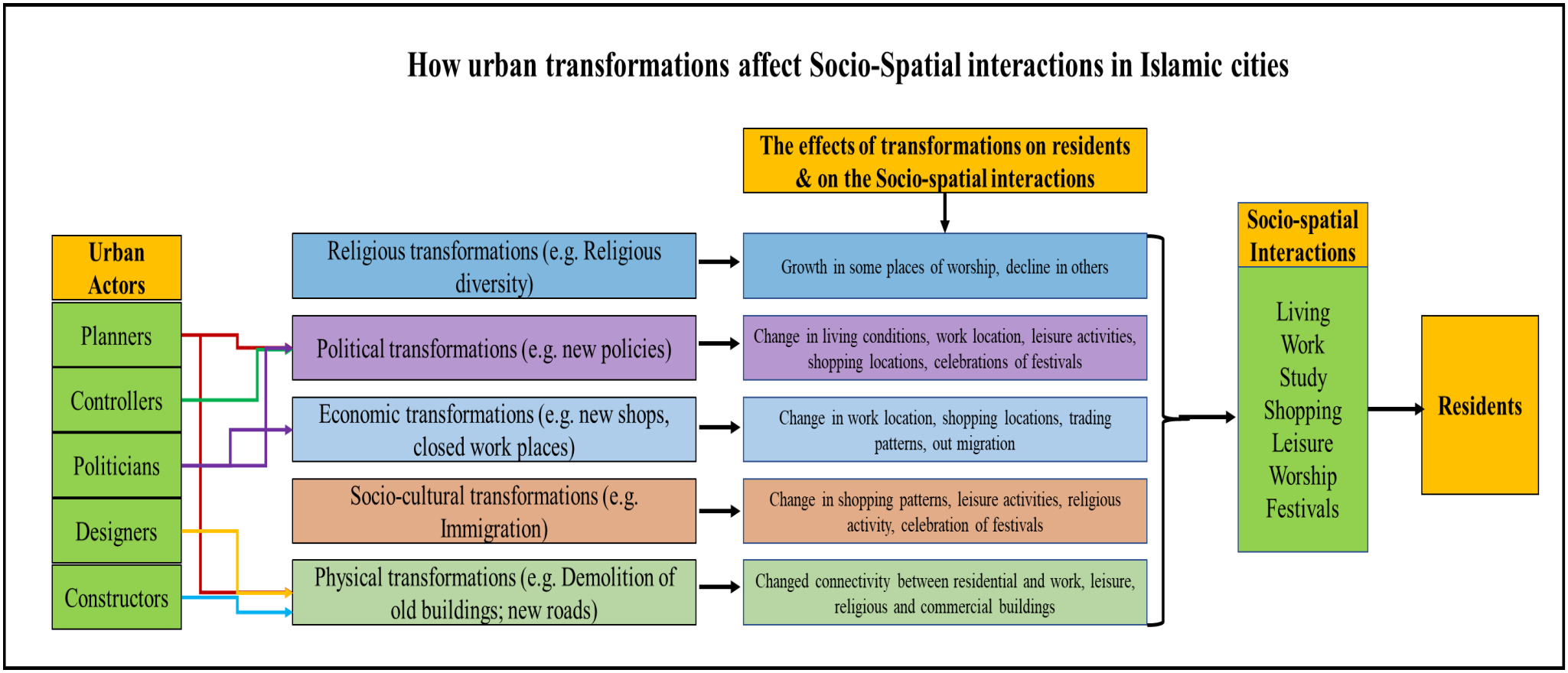

Figure 3. 15 The effects of Urban Transformations by Urban actors on Socio-spatial interactions and residents ; (Source: Author).

In establishing the nature of these interactions, action in one may affect all the other components. This means that for analytical reasons these interactions should be dealt with separately and with differentiated weighting. For example, political and socio-economic aspects are associated with the physical and spatial dimensions, which help us understand how urban actors produce and transform the urban form. Secondly, physical and spatial dimensions are also linked to the socio-cultural dimensions. In this thesis it is also important to understand the relationship with religion, since Iran is governed by an Islamic government.

3.7.2 People's activities and lifestyles

Mortada (2003) argued that Islamic tradition expresses various factors such as social organisation and behaviour that are firmly connected to tradition of equality. One recent issue is where non-traditional values and regulations come into play under the umbrella of 'modernism'. These cause new problems such as conflicts between residents in compact buildings and within alleys, and relationships can become strained. Therefore, it is essential to provide a comprehensive framework that includes the dimensions and components of interactions, political and socio-economic, physical and spatial, social and cultural, and time dimensions.

3.7.3 Immigration

One of the key socio-cultural aspects is immigration. This happens on two main levels: firstly, people from other cities within the country migrate to the historic core because of the low price of land and economic opportunities. Secondly, people living in the historic core move out due to lack of security, poor urban facilities and lack of development policies. The historic cores are consequently vacated and migrants from other countries find accommodation in these zones. These factors are important to consider for social, cultural and morphological rehabilitation within historic cities (Abbasi and Sadeghi, 2015).

The notion of welfare and a comfortable life in old Islamic cities needs to be integrated into organisational rehabilitation, (Sarvestani, and Kanaroglou, 2011). In this case, awareness of problems in historic areas and the careful analysis of such problems is a useful first step. This stage establishes why so many immigrants are drawn to living in the old textures of Iranian cities, and to recognise the problems and the consequences of living in historic zones. Therefore, this research also explores the reasons which have had an effect on immigrants' tendency to live in old parts and to understand their living conditions. Among the reasons for that are the low cost of the land and houses, a low level of urban services and erosion of old textures of Iranian cities and vacant properties. Shiraz Municipality Report, 2007, identified some key elements affecting the decline in lifestyle and increased rates of immigration and low-income residents, which are as follows:

- The numbers of immigrants living in historic parts are at an undesirable level, because they do not understand the cultural significance of the area and therefore, do not protect it.
- The substitution of local residents for immigrants of old textures has had many negative consequences, such as dilapidation of cultural heritage.
- The best solution seems to be economic, constructional and cultural rehabilitation.

Therefore, it is clear that people are at the centre of all urban activities, especially in Islamic cities. It is also clear that different groups of people need to be aware of each other's roles in the rehabilitation process. Therefore, the next section will discuss how different groups of stakeholders need to interact in order to achieve a successful rehabilitation programme.

3.7.4 Identification of different groups of stakeholders and the need for interaction between them

For achieving efficiency in rehabilitation, government intervention ought to include effective coordination between all stakeholders involved. In Islamic cities, it is common to find a wide variety of stakeholders from both public and private organisations who seldom have a common strategy or framework and can even work in conflicting ways (Balbo, 2012). Consequently, this disconnectedness can often hinder completion of projects and have a significant negative financial impact (Ratcliffe et al., 2009). The development of the built environment affects many urban actors, moves huge capital stocks and has indirect repercussions for various temporal and spatial scales. Therefore, there is a serious need to improve knowledge about urban transitions, i.e. the process of planned transformations of a city or its districts and suburbs from one state to another (Dawson, 2011; Kohler & Hassler, 2002).

With regard to the financial and social success of an organization, Metcalf and Benn state that managers who value their stakeholders are found to be more effective and successful (2013). For this reason, Stakeholder Analysis is introduced to assist urban planners in this respect (Kujala et al, 2012). It helps urban designers to gain better understanding of the different groups of stakeholders, their rational participants in each group and the level of their influence which are vital concepts when it comes to rehabilitating historic areas.

Hague and Jenkins (2005) argued that the significance of acknowledging the role that key actors play in urban rehabilitation and transformations relies on the fact that the social construction of physical form is associated with the level of quality in the place.

Consequently, any stakeholders who implement physical urban changes have an impact upon the construction associated with the use and experience of modern places. However, urban actors seem to have various degrees of power in transforming the built environment (McGlynn, 1993). As mentioned in section 3.5.4 and 3.8 of this chapter, in Iranian cities, the Mosque and bazaar are traditionally places where people gather and participate in making decisions about the built environment, policies and social activities. They can affect various morphological levels, and their interventions can be on different scales. Changes in the urban form can be enforced by stakeholders in public and private spheres with differentiated impacts.

In terms of socio-cultural factors, the conceptual framework needs to address improving the social structure at city and neighbourhood level by paying attention to land use and design qualities on one hand and legal urban planning and urban actors and their interests on the other hand.

From sections 3.4, 3.5, 3.6 and 3.7 of this chapter, it can be concluded that the morphology and formation of Islamic cities are based on integration of key elements: religious, socio-cultural, political and economic factors, which are influenced by Islamic law and are interconnected. Thus, a change in one of these factors will affect the others. Hence, it was necessary to understand how these factors relate to each other. Therefore, the following section describes urban morphology and design qualities in historic Islamic cities.

3.8 Urban morphology and Urban Design Qualities

Having described the religious, social, economic and political influences on the spatial configuration of Islamic cities, it is also necessary to outline general characteristics of the city's spatial structure which are the result of these influences. Understanding different types of urban morphology theory is needed because Islamic cities have a unique morphological pattern, therefore this understanding will help rehabilitation of historic Islamic cities, particularly in Iran.

Firstly, the key components of urban form and how the morphological levels of the built environment support the rehabilitation process, will be discussed. Secondly, key design qualities and the ways they contribute to support the rehabilitation in historic cities will also be explained. Bentley (1999) defines urban morphologies, spatial typologies and patterns of land use as the physical and spatial products of urban transformation. Urban morphology approaches human settlements as generally unconscious products that emerge over long periods, through the accrual of successive generations of building

activity. This leaves traces that serve to structure subsequent building activity and provide opportunities and constraints for city-building processes, such as land subdivision, infrastructure development, or building construction. Articulating and analysing the logic of these traces is the central question of urban morphology.

The objectives of urban morphology can be listed as follows: A) to develop an analytical technique for 'reading' the city by understanding the evolution of urban form in relation to social, economic, religious and demographic changes; B) to contribute to decision-making about future changes to the urban fabric (Samuels, 1985). The study of urban form might be employed for: a) descriptive and explanatory purposes, developing a theory of city building; b) prescriptive purposes, developing a theory of city design; c) assessment purposes, developing a critical framework (Moudon, 1997). It can be also used to enlighten city design, and urban rehabilitation schemes (Butina Watson, 2007). It is useful to identify how European and Islamic scholars integrate different concepts of urban morphology in Islamic city rehabilitation and this is presented in the following section.

3.8.1 Different theories of urban morphology

Urban morphology has been regarded as an aid to the analysis of the physical context in the present study (Conzen and Whitehand, 2012). Before employing the morphological approach, it is important to explain how an urban morphological approach can aid in this analysis. Kai (2001), investigated various historical aspects of urban design and planning approaches to understanding the city. Samuels (1990) explored the same issue in diverse contexts with various concerns. For academics, the significance of morphological research in town plan analysis and particularly in historical preservation remains strong (Larkham, 2002; Kai, 2001). In practice, however, morphological analysis is a notable contribution when utilised as a practical device for drawing up the guidelines for design control and urban development management (Whitehand, 1992).

Urban morphology is also the study of urban landscapes and is an approach to studying cities and to design intervention. It is not usually focused on single elements, but on networks and relationships between urban components, such as streets, monuments, open spaces and buildings. There is, consequently, a tendency to use morphological surveys to: examine both the ordinary and the remarkable areas of the city; to investigate the processes acting upon the city and its components, and to examine the built landscape as a whole (Larkham, 2018).

Therefore, the following section will present urban morphology in historical cities generally, and then with particular reference to Islamic cities.

3.8.2 Morphological elements

Having reviewed the theories of urban morphology, it was identified that for rehabilitation of historic cities, there needs to be attention to key urban morphological elements both generally and specifically to Islamic historic cities. In this regard, Table 3.3 shows the general morphological elements and those specific to Islamic historic cities, based on the works of Conzen (1966), Stanilov and Scheer (2004), Whitehand and Carr (2001), Whitehand, Morton (2003) and also, section 3.5 of this chapter and Chapter 2 as characteristics of Islamic cities.

Morphological Elements in general terms		Morphological elements in Islamic cities	
Topography	Natural landscape, rivers, mountains, valleys, plains	**Grand Mosques**	Religious building in heart of the town
Land use pattern	Commercial, residential, etc.	**Market**	Located outside the mosque with religious trades located closest to the mosque and a central area for public activities
Street pattern and open space	The layout of urban blocks and public space between the blocks	**Citadel**	The governor palace located within its own walls and mosque in the high part of the town near the city wall
Block and Plot pattern	Building contained within the plot and its location	**Residential quarters**	Clusters of households grouped by economic social and religious status. Each cluster has own mosque for daily prayer and contains religious school, gates and shops.
Building structures	Building, Room, Structure, Material	**Street network**	A network of public, private and semi-private streets and cul-de-sacs
Building details	Materials, decoration	**Wall**	Surrounding the city for defence
		Exterior of city	A weekly market; separate Muslim and Jewish cemeteries; private gardens and fields

Table 3. 6 A comparison of morphological elements in general and Islamic cities (Source: Author).

Table 3.6 shows that there is a mismatch between the morphological elements in general and in Islamic cities. Therefore, for the rehabilitation of historic cities in Iran, which are Islamic cities, it is necessary to develop a new integrated conceptual framework.

3.8.2.1 The Natural Context

The natural context is the biggest factor in the establishment and organisation of the different elements of urban form. The relief of the land, quality of the soil, climate, aspect, solar and wind exposure and the natural landscape will all influence the establishment of a settlement. Its foundation, the development of its infrastructure, the subdivision into plots and its buildings are all influenced by these factors.

Over many time periods, each initial settlement is influenced by the unique configuration of the land relief upon which it is built. Oliveira (2016) stated that the territory lines are structured by ridge lines and thalweg lines. Ridge lines are imaginary lines connecting maximum elevation points and dividing the flow of water while thalweg lines connect the lowest elevation points. The points where the ridge lines and thalweg lines branch out, are notable points of the territory, sometimes called distribution centres. The ridge and thalweg lines represent lines where less effort is required to overcome the slope. Over time, these lines were the lines of movement and places where they meet become central places in the territory (Figure 3.16).

Figure 3. 16 Physiography of the physical support (ridges and thalwegs; distribution centres and encounter centres) and of the street system (ridge streets and thalweg streets) of Lisbon (Source: Guerreiro, 2011).

3.8.2.2 Urban tissue

In order to better understand the morphologically complex organism, the city, one can view the relationships between the different components of the city at different levels. Kropf (1996), described how the city was composed of urban tissues and how urban tissue could be seen at different resolutions. High levels of resolution show a greater amount of detail, including construction materials of an open space or building, while lower levels of detail show more general detail – only streets and street blocks.

Generally speaking, all cities are composed of urban form elements: streets, street blocks, plots and buildings. However, in each city these elements are combined in a unique way, giving each city its own character, which is further developed by time.

3.8.2.3 Street and open space pattern

Street systems are the means by which we travel and begin to know a city. They define the limits of public and private spaces and are the place where everyone interacts socially. Hillier (2009) described how social divisions cannot exist on the streets since everyone must use the streets, whereas buildings divide people into social groups. He stated that the liveability of streets indicates the strength of a civil society.

Cities transform permanently over time, but streets are the most stable element, being the most resistant to change, while plots are less durable, and buildings are less durable still. Streets vary in dimension and function but are influenced by other urban elements such as plots along the streets, the buildings along them and the sense of enclosure given by the buildings. They can also be analysed by the distribution of space for pedestrians and vehicles.

3.8.2.4 Block and Plot pattern

Plots are an important component of urban form, separating the private and public spheres of life, yet their role is often overlooked in urban planning. Plot system definition is an essential part of city formation and is relatively stable. Plots are divided according to land ownership pattern and can be subdivided. They are defined by their relation to the street, their dimensions, proportion, orientation, their position within the plot system and their shape. A system of plot patterns is defined in the street system into block structures. Since, plots also determine the building type that can be built within the plot, they have an important impact upon the urban landscape.

They define urban grain and tissue patterns Therefore, initial decisions made about the plot will impact upon city formation for a long time; even after major disturbances such as war or earthquakes, the plot system tends to be maintained (Whitehand, 2001).

3.8.2.5 Building pattern

While it is true to say that buildings are not as stable as streets and plots, they are the most important and the most visible of urban elements. The position of the building within the plot is an essential factor in the formation of character of the urban landscape. In the 19th Century, most cities aligned buildings in a continuous manner, which defined street form. However, in the 20th Century, greater variation in the positioning of buildings within plots was introduced, redefining the street and street block (Kropf, 2018).

Buildings give a sense of enclosure to a street, determined by the height of the building in relation to the width of the street, giving character to the urban landscape. Their façade design will also give form to the urban landscape. Buildings often reflect styles of architecture which are common to the country and continent in which they are located and the era in which they were built. Table 3.3 shows that there are specific morphological elements in Islamic cities, which differ from European morphological elements, because they centre around specific buildings such as the Mosque and Bazaar. These buildings shape the pattern of the urban tissue, streets, blocks, plots and buildings in Islamic cities. These individual morphological elements are connected to the socio-cultural, economic, religious and political factors, identified in previous chapters of this research. Therefore, the following section will discuss the characteristics of these morphological elements and patterns in Islamic cities, which can help to understand how rehabilitation of historic fabric can be achieved in different layers of urban morphology.

3.8.3 Urban morphology pattern in Islamic cities

Islamic cities are places that connect natural, social, economic and physical processes and shape the relationship between people and their environment. Three internal elements, the Grand Mosque, citadel and the bazaar are the location for religious, political and economic, as well as socio-cultural interactions. The external factors, such as the natural landscape, climate, and topography, combined with the Islamic morphological elements shaped the origins of Islamic cities (Ross, 2001; Kelleher & Slauraklin, 2014). In this regard, Figure 3.17 shows how these morphological elements are located within Islamic cities, how they connect with each other and how the city fabric is shaped around them.

Town planning should link the five components of rehabilitation in Islamic cities: socio-culture, economics, religion, politics and urban morphology. These morphological components are not simply representative of the built form, but they also are part of the urban transformation. Understanding of these interactions helps to rehabilitate Islamic historic cities and will be used also in the case of Iranian historic cities.

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Figure 3. 17 Examples of Land use pattern in Islamic cities (Source: Kheirabdi, 2000, annotated by Author).

The overall cultural landscape, formed in relation to landscape features such as hills, rivers and the overall topography, mostly predates human intervention. It is likely to remain even if any specific settlement eventually perishes.

3.8.3.1 Land-use pattern

The patterns of use in Islamic cities may regularly change, being accommodated within the physical structures on varied timescales. Although streets might accommodate traffic six days a week, a market may be accommodated only one day a week. On the other hand, numerous buildings can accommodate radically different uses during their lifetime, although some major functions such as religion, markets, etc. may remain.

3.8.3.2 Street and open space pattern

In Islamic cities, street dimensions are affected by several factors. One of these is the street width, which according to Islamic law, must be able to accommodate two loaded camels (3.23-3.5m) and the minimum vertical height should be at least 3.23-3.5m high, corresponding to the maximum height of a camel (Hakim, 2013).

The public space comprises streets, squares, parks and other spaces in public ownership, with free public access. It is usually the longest lasting level of human intervention. Another factor is the direction of the street, which can be influenced by the *qibla* (the orientation towards Mecca) or the local topography and the direction of water flow, (Bonine, 1990) or where it is in the hierarchy of streets.

3.8.3.3 Block and Plot pattern

A plot is a continuous area of land, not intersected by public space, often with a single owner. Although plots are found to change more rapidly than public space structures through subdivision or amalgamation, they usually change less rapidly than any buildings which might be constructed on them. In Islamic cities, plots often contain short courtyard buildings occupied by different generations of a single family which allows Islamic principles of privacy to be respected (see section 3.5.3) (Ahmadi, Ani, Farkisch, and Surat, 2012). Figure 3.18 shows different morphological elements of block and plot pattern: 1. Bazaar, 2. Guzar (Main Street), 3. Kucih (Alley), 4. Bunbast (Alcove), 5. Hashti (Cul-de-sac), 6. Khanih (House).

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Figure 3. 18 The pattern of streets, blocks and plots in Iranian historic cities and their connections to bazaar. (Source: Kheirabadi, 2000).

3.8.3.4 Building pattern

Buildings are often changed relatively rapidly, often at least once in less than 100 years. Although they might be adapted and/or extended every few years, their basic typological arrangement often remains unchanged for several generations until they are demolished and replaced. Buildings in Islamic cities follow the principles given by both the urban morphology and Islamic law. These methods contain building guidelines and design language such as the minimum and maximum height, opening doors and windows to cul-de-sac, public and private spaces (as presented in Figure 3.5 and Figure 3.18). On the other hand, these factors affect decision-makers who influence the dynamic of the city in two levels: macro-level, such as urban and building decisions by rulers and micro-level such as dwelling and neighbourhood decisions by citizens. The dynamic of the city is connected to the site and environmental conditions are connected to urban physical systems which contain two layers. The first layer includes religion, economy, government and defence, and health and waterworks. The second layer contains housing and quarters, street network, open spaces and building heights (Hakim, 2013). This information is useful for the integrated conceptual framework of rehabilitation of historic cities in Iran. Figure 3.19 presents the connections between those elements.

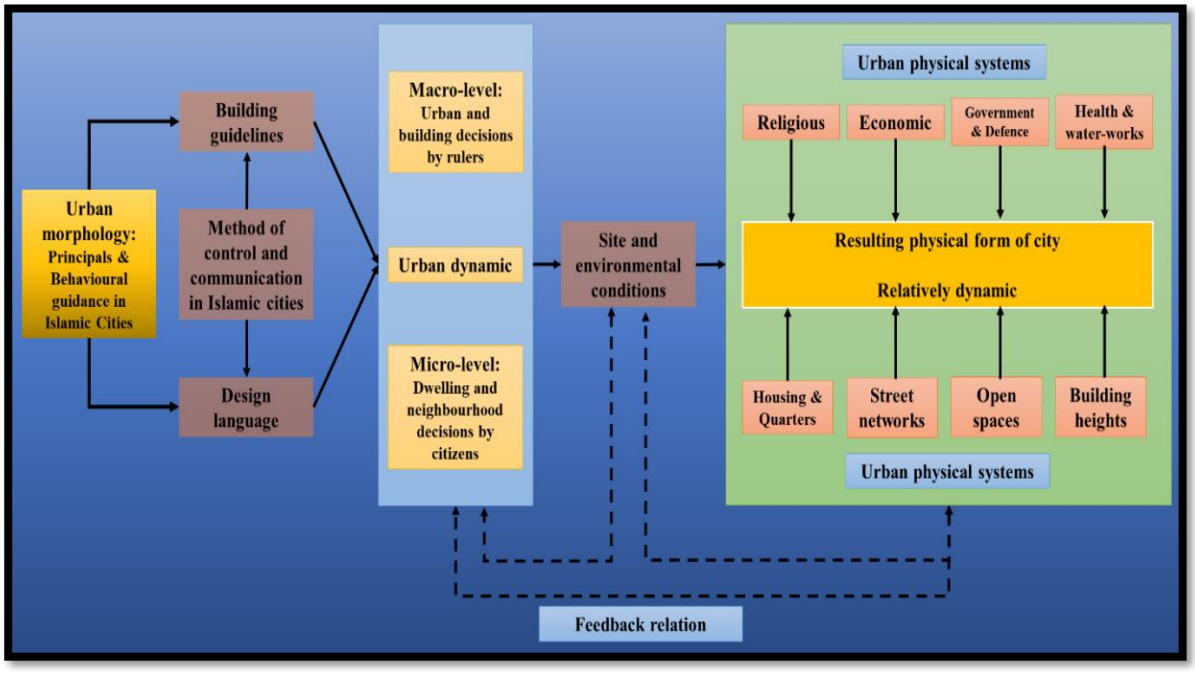

Figure 3. 19 The connection of urban morphology principles with urban design methods in Islamic cities in different city level and urban physical system.

3.8.4 Socio-spatial dimensions in Islamic cities

Since 1980, extensive research in rehabilitation of historic fabrics, such as Istanbul in Turkey, and Baghdad in Iraq, has been carried out on the cities of the Ottoman Empire. Historians have investigated the social bases of political segregation, histories of elites and ordinary people, different family structures and gender roles, marginalized groups such as prostitutes and slaves, and the relationships between Muslims, Christians and Jews (Reilly, 2012) Figure 3.20. These groups tend to be segregated from each other, tending to settle in different neighbourhoods as in Jerusalem. This is reinforced by analysis of historic fabrics in Islamic cities, which shows that different neighbourhoods were developed specifically for different groups, based on religion, employment, family clanship and social status. These areas were connected with both each other and the citadel.

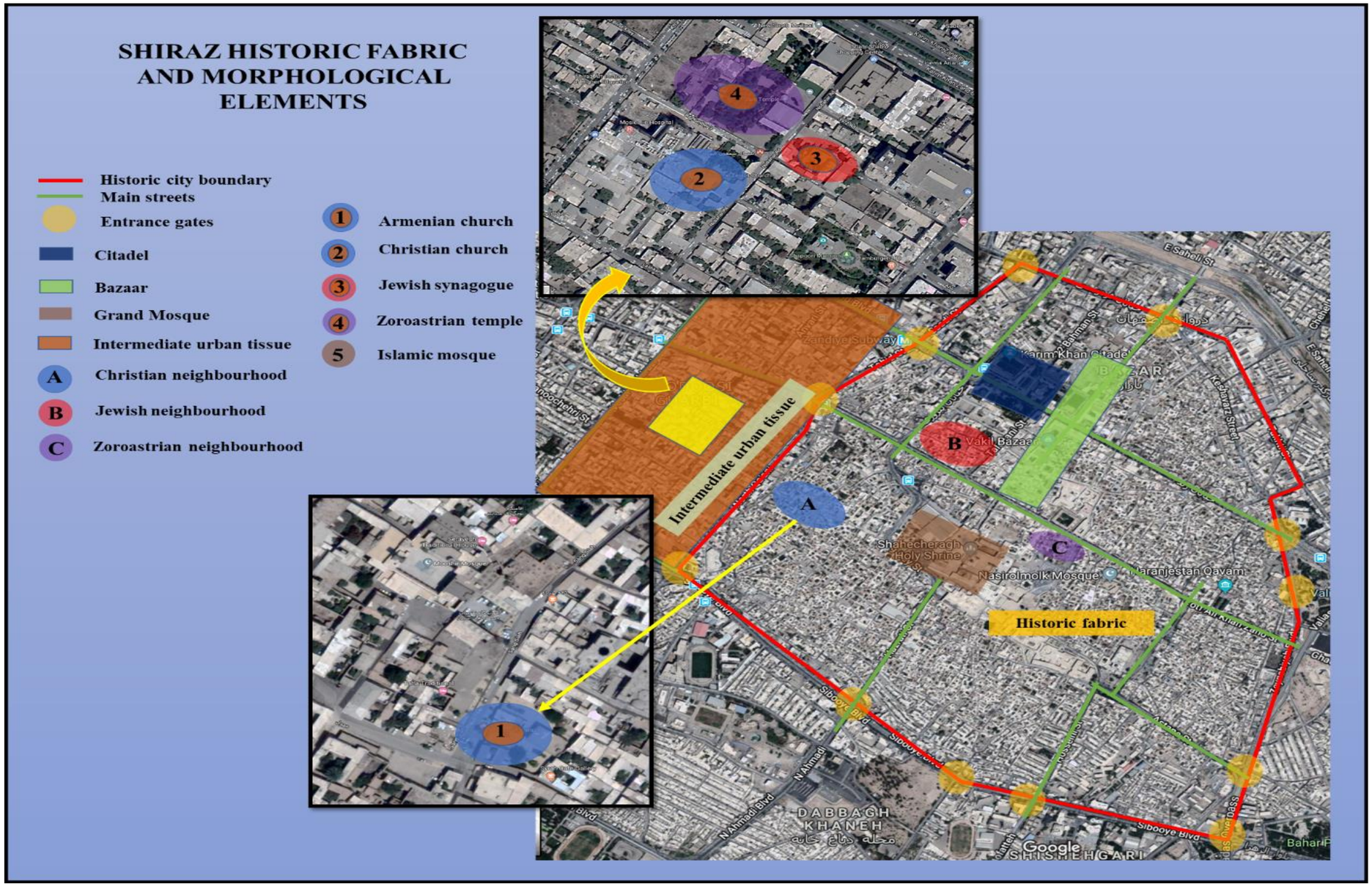

Figure 3. 20 Socio-spatial dimensions in Shiraz Islamic city, (Source: Google maps, annotated by Author).**Socio-spatial dimensions in Shiraz Islamic city, (Source: Google maps, annotated by Author).**

These morphological elements can also be observed in the work of Conzen (2018), who developed a method called ‘town-plan analyses, Figure 3.21.

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Figure 3. 21 Town planning, Land use pattern and public spaces, streets, blocks, plots and buildings in Islamic city of Cairo. (Source: Mohareb, 2016).

These morphological concepts make a significant impact on the processes involved in rehabilitation of historic cities. Accordingly, to provide a logical framework for rehabilitation, an essential pre-requisite is the identification of the interactions between these concepts and the rehabilitation of historic fabrics in Iranian cities. To this end, this section discusses each concept to elaborate on its relation to the rehabilitation of Islamic urban contexts.

3.8.5 The relevance of morphological approaches to social and physical context in Islamic cities

Kai (2001) proposes that morphological study method is a particular form of synthesis, an inductive procedure for identifying the major structural (form) elements in the landscape and arranging them in a development sequence (their morphogenesis). The urban morphology is rooted in the morphogenetic research tradition of Central Europe, dating back to the work of Schluter (1899). However, morphogenetic research has been prominently promoted by numerous studies among which mention can be made of Conzen's (1960) work on Alnwick, Northumberland which is a study in town planning analysis (Whitehand, 2001) and more recently by Kropf (2018) in his definition of built form using urban morphology. Conzen's research has mostly accentuated the reading of the town plan and his complete method includes the town plan, a two-dimensional cartographic representation of a town's physical layout; the building fabric, made up of buildings and related open spaces; and the pattern of land and building utilisation, that is the detailed land use (Conzen and Whitehand, 2012). These three analytical components (the town plan, the building fabric and the land use pattern) seem to be genetically and functionally interrelated. The documents are needed to explain urban form which includes: **a)** the town plan in the town plan analysis, encompassing three fundamental elements; the streets, the plots, and the buildings (Conzen, 1960); **b)** the distribution plan of urban building types; and **c)** the distribution plan of urban land uses. These morphological elements as interpreted in this analysis will be examined in greater detail in the following section.

In addition to these elements, Conzen's methodologies such as the 'plan unit,' 'morphological period', 'morphological regions', 'morphological frame', 'plot development cycles,' and 'fringe belts' have led to a Conzenian School in Britain. Its contribution to urban form studies can be summarised under the following headings (Moudon, 1997):

- The establishment of a basic framework of principles for urban morphology.
- The adoption for the first time in geographical literature in the English language of a thorough-going evolutionary approach.
- The fundamental unit of analysis;
- The use of detailed cartographic analysis (especially employing large-scale plans) in conjunction with field survey and documentary evidence
- The conceptualisation of developments in the "townscape" (Whitehand, 1981:12).
- The application in rehabilitation interventions (e.g. Bologna) and inquiry by design.

Conzen also introduced the concept of 'historicity' in his study on conservation of historic landscapes and their management (Sanders and Schroder, 2008). He regarded 'historicity' of a place as a 'quality'; however, since the degree of 'historicity' might be lost depending on the amount of destruction of traditional forms and the quality of associated redevelopment, it is not considered a permanent property (Larkham, 1992). Caniggia and others worked based on Ridolfi's documentation of traditional construction techniques for builders and craftsmen to follow and set a pattern of historic elements in Italian urban morphology (Butina Watson and Bentley, 2007).

The analytical components to describe a town outlined above were also considered by Conzen as the main components of 'historicity' with their relative levels of permanence. **1)** 'Town plan' is the most permanent or durable component, reflecting past patterns of ownership, **2)** 'building form' is the second durable component reflecting capital investment and is subject to the natural process of obsolescence, and **3)** the most ephemeral degree of historicity in each town is the 'land use pattern which also changes differentially over time'.

These analytical components regarding their degree of permanence contributing to the historicity of a given cultural landscape are elaborated below (Conzen, 2018). There are several different ways to organise and refer to the merit of open space in urban planning and design as mentioned in section 3.9 of this chapter. Therefore, each component is relevant to the study of Islamic cities, because an understanding of their function within the urban form and their interconnections, can help to identify which approaches are appropriate for the rehabilitation of Islamic historic cities. However, an understanding of design qualities of western countries is also needed which is presented in following section.

3.9 Design issues and relevant urban design qualities

Urban design qualities are defined as characteristics or attributes of the nature of a place (OED, 1989; Bentley, 1999; Carmona el al, 2012). The physical relationship between historic neighbourhoods and their surrounding contexts has been readily accepted since the 1970s and considered in master planning activities. This relationship is increasing in importance internationally and is aimed both at private sector development professionals and at public sector development control. Thus, the appropriate criteria to assess the physical context of the empirical case study will be developed based on the qualities established in numerous studies (Bentley, 1985; Bentley, 2004; Golding, 2001; Planning Officers Society, Commission for Architecture and the Built Environment & English Heritage, 2001 and Butina-Watson and Bentley, 2007), which can be categorised as follows:

- Quality of life
- Quality of built form
- Quality of public realm such as public open spaces
- Quality of urban environment

This section will identify the widely recognised urban design qualities, which not only address the negative character of historic areas, but also enhance choice for the diverse user groups of historic areas as follows:

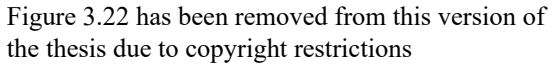

Figure 3. 22 Key qualities in urban design in relation to the scale of physical form. (Source: Ewing and Handy, 2009).

The following sections will discuss some of the key qualities of urban design shown in Figure 3.22 in relation to Islamic cities.

3.9.1 Permeability

Permeability is defined as alternative ways to access the built fabric and affects where people can and cannot go (Butina Watson and Bentley, 2007; Bentley, et al., 1999). The urban design qualities that address restrictive road layouts, urban patterns, limited and controlled land uses (which enable better linkages and a variety of land uses) is known as 'accessibility' (Chapman and Donovan, 1996; Lynch, 1984) or 'permeability' (Butina Watson and Bentley, 2007; Bentley, et al., 1999). This quality is expressed in urban patterns which are simple to walk through (Punter and Carmona 1997). Bentley (1999) has argued that to make public space accessible, it needs to be reachable by potential users. There are three ways in which the accessibility criteria are met: a) physically, by having unrestricted access for traffic and communication such as avoiding fences and shacks; b) visually, by allowing people to use choices available (Galeana, 2002); and finally, c) socially, by allowing people of different classes, beliefs and persuasions to establish relationships between themselves and the built environment. Each of these three factors can be seen in Islamic cities by presenting the streets and alley system, the role of the mosque and square as an urban complex, accommodating different kinds of users.

3.9.2 Legibility

Legibility is defined as the degree to which the layout and design of a place allows the easy construction of sensibly accurate and stable mental maps (Lynch, 2004; Butina Watson and Bentley, 2007; Bentley, 1999; Marshall, 2005). Lynch (2004) referred to the lack of clarity in the organization of the urban fabric as 'legibility'. This quality favours a clear city pattern, allowing people to comprehend the spatial organization of the built environment as well as the options it offers. Since the clarity of available choices within the cultural heritage precincts and their locations allow people to use their built environment in the best possible way, this quality is significant within the historic urban environment domain (Gehl, 1987; Rakodi, 1993). Furthermore, recent design guidance and research into historic environments shows that the adequacy of physical definition and location of historic monuments and buildings have wider implication for social interaction amongst residents (Golding, 2001) and for rehabilitation interventions. Lynch (2004), stated that with regards, to legibility, there are two main characteristics which affect how people acquire spatial knowledge: characteristics of space and characteristics of user. He also noted that there were five image elements of space: landmarks, paths, districts, edges and nodes. Important landmarks can be defined as those which are distinct from their background, have a clear form and are in a crucial location. In Islamic cities,

the important landmarks are mosque, citadel, bazaar, schools, caravanserai and public baths and gardens which are connected by a variety of streets and narrow alleys.

3.9.3 Variety

Variety is defined as the spatial grain of a place's patterns of form and activity (Butina Watson and Bentley, 2007; Bentley, et al., 1999). It is an applicable indicative aspect of urban design quality and this is an important basis and an instrument for measuring and assessing quality in built environment (Coupland, 2005). The relevance of variety was of high priority in the rehabilitation of Bologna (Butina Watson and Bentley, 2007). Bentley (1999) considers variety as a central quality that forms one aspect of the responsiveness of the built environment. It is the outcome of multiplicity of patterns of use, building forms and types, variety of users and different hours for using the space. This concept is also considered as an aspect that highlights the degree of choice in a given place during its use by different users. Variety is specifically important for historic cities comprising religious cultural heritage, for instance a temple or a mosque, and inhabited by diverse community groups, since the areas surrounding these historic areas are often lived in by people from the same religious background or have a low mobility of people, such as children, the elderly and the disabled. That is possibly why social contact between local community groups, when shopping or socialising encourages and maintains various levels of social integration and is discussed in the realm of variety.

As mentioned in the Introduction chapter, two different traditions affect Islamic cities: pre-Islamic traditions, and those that have come with the arrival of Islam. One pre-Islamic tradition affecting Islamic cities is the segregation of classes: higher social classes were set apart from working classes due to the location of the palaces, citadels and camps being away from the commoners. The grander structures were located on the outer edges of the city, while working classes such as tradespeople were based in areas close to the bazaar, and their residences and community facilities, such as smaller mosques, were weaved into the urban tissue (Bianca, 2000; Lapidus, 1969).

However, with the arrival of Islam came the concept of *ummah*, whereby people live together in society regardless of wealth; the richer people do not manifest their wealth outwardly in terms of their home, therefore homes in one neighbourhood will have little variety. Therefore, in some Islamic cities, there is little variety in residential buildings, for example in Figure 3.23 showing the similarity of size and shape of houses. (Mortada, 2003).

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Figure 3. 23 Shows houses of similar size and shape in Tunis (Source: Mortada, 2003).

In Islam, family bonds are tight, and family is to be put first above other relationships. This means that three or four generations of a family often live together under one roof. Traditionally, an Islamic house was never finished, because as one generation grew up, another storey was added to the house. An example of this is shown in Figure 3.24. This leads to variety in houses, as houses are added to and will have different shapes and numbers of storeys (Mortada, 2003).

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Figure 3. 24 A traditional Islamic house in Mecca with different generations of one family living in each storey (Source: Mortada 2003).

In Damascus, The Great Mosque (built c.710AD) and the Christian church of St John (built on a Roman temple site) are situated next to each other. Physically, their characteristics are very different because they were built during different eras and are based on different styles of architecture. However, socially they co-exist peacefully together because of the Christian principle of loving your neighbour and the Islamic concept of 'ummah'. This is an example of physical variety in the urban fabric as well as social variety (Mortada, 2003).

Islamic cities may also be affected by the idea of urban zoning, first introduced by the Prophet Mohammad, whereby people from the same tribes were encouraged to settle in the same neighbourhood, so that cities comprised different zones each occupied by a different tribe. This phenomenon can still be observed in Islamic cities today and is another example of social variety in Islamic cities (Mortada, 2003).

3.9.4 Resilience

Resilience is defined as the ease with which the spatial structure of a place can adapt to alternative patterns of activities (Butina Watson and Bentley, 2007; Bentley, et al., 1999). These activities in buildings and open spaces and the promotion of such activities which are irrelevant to residents' perceived needs, lifestyle, background and behaviour, often function to the disadvantage of the potential of cultural heritage sites and open spaces. The ability to adapt to alternative uses over time would enhance the resilience of Shiraz's central historic core. The concept of resilience is considered a key urban design quality for social cohesion in the culturally diverse contexts studied in this research.

A literature review identified that some historic Islamic cities are influenced by modernisation over the centuries and are therefore developed based on the ideology of modernisation. Historic cities such as Cairo in Egypt, Baghdad and Samarra in Iraq and Damascus in Syria are good examples of how modernisation affects historic cities, both positively and negatively (Al-Sayyad, 2015). It is positive change because new technology increases the livelihood of residents, but negative because it changes the identity of the place and potential destruction of urban areas.

A rehabilitation strategy must, therefore, ensure that the urban tissue is permeable and that the key elements of the tissue are well connected, especially, the Mosque and Bazaar to the residential areas. It must ensure that the city remains legible; that the landmarks maintain their accessibility and are easily recognisable. The traditional variety found in Islamic cities must be maintained and the monuments and houses must be resilient to future changes.

3.10 Developing a new and integrated approach – establishing a conceptual framework.

Having outlined each of the crucially important factors necessary to construct an integrated framework for the rehabilitation of historic city cores in Iran, as initially shown in Figure 3.6, this section pulls together these aspects into a comprehensive and integrated conceptual framework. The aim of this framework is also to develop a methodology for the analysis of current challenges being faced by historic districts in Shiraz and to then use this framework and methodology to evaluate key characteristics on a macro and micro-scale in Shiraz in order that they use it to propose preliminary recommendations for the holistic rehabilitation of Shiraz.

It can be concluded that the rehabilitation of historic cities in Iran influences and is influenced by social activities, the livelihood of residents, the quality of urban form and spaces and the connectivity of the city, both internally and externally. Each of these elements are in turn influenced by five key factors: economic, religious, physical, socio-cultural dimensions and urban policies. Each of the key factors has their own sub-components that can affect the rehabilitation process of Iranian historic fabrics. Figure 3.25 presents the relationship between each key factor, as identified in Chapter 2, and the interrelationships between each component of those key factors.

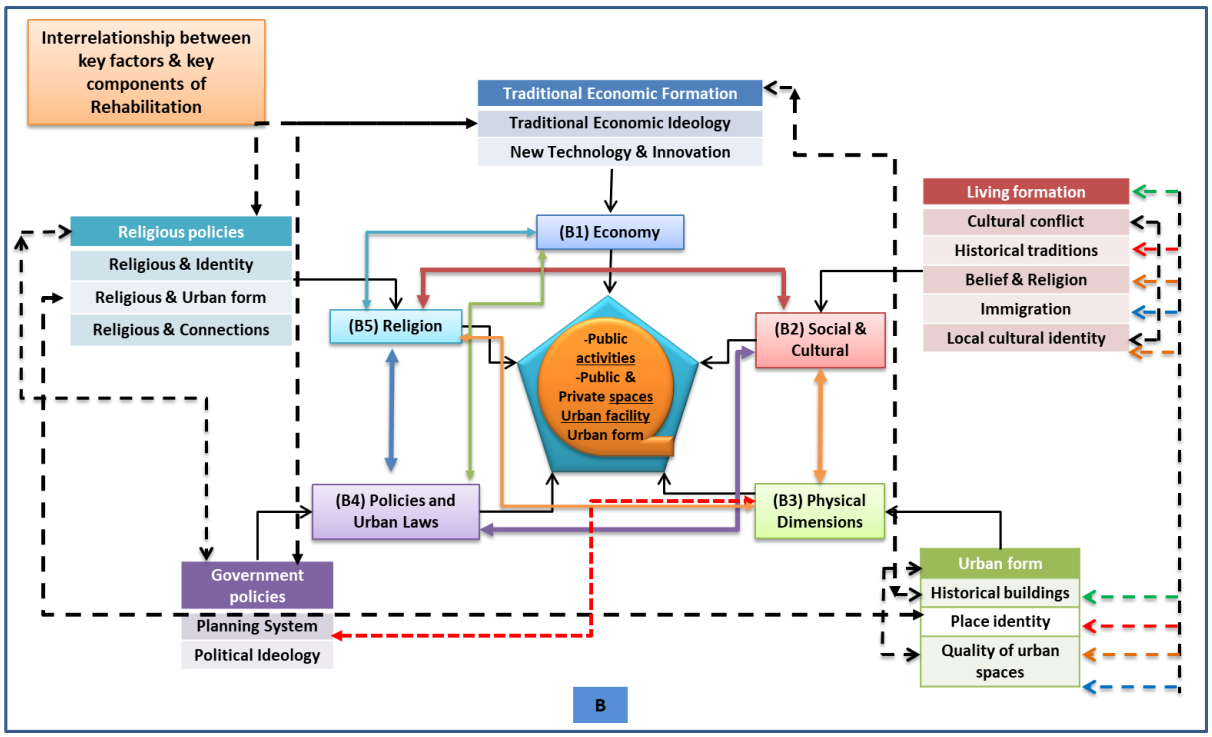

Figure 3. 25 Conceptual framework based on interrelations between key factors, (Source: Author).

3.11 Integrated conceptual framework

The aim of this chapter is to develop an integrated conceptual framework to identify, understand and analyse the main challenges in developing rehabilitation approaches for improving urban conditions of historical districts in Iranian cities. This section presents the integration of the theory and practice for the rehabilitation of Iranian historic cities. Rehabilitation is to preserve local identity whilst accommodating new technologies and lifestyles and supporting people's livelihoods.In the light of this and Figures 3.2 and 3.3 of section 3.2 of this chapter (which present the five key components of livelihood theory) and Figure 3.25 (which presents the connection between the components of livelihood theory and rehabilitation of urban historic fabrics), Figure 3.26 demonstrates the interactions between theory and practice, based on the common factors of each.

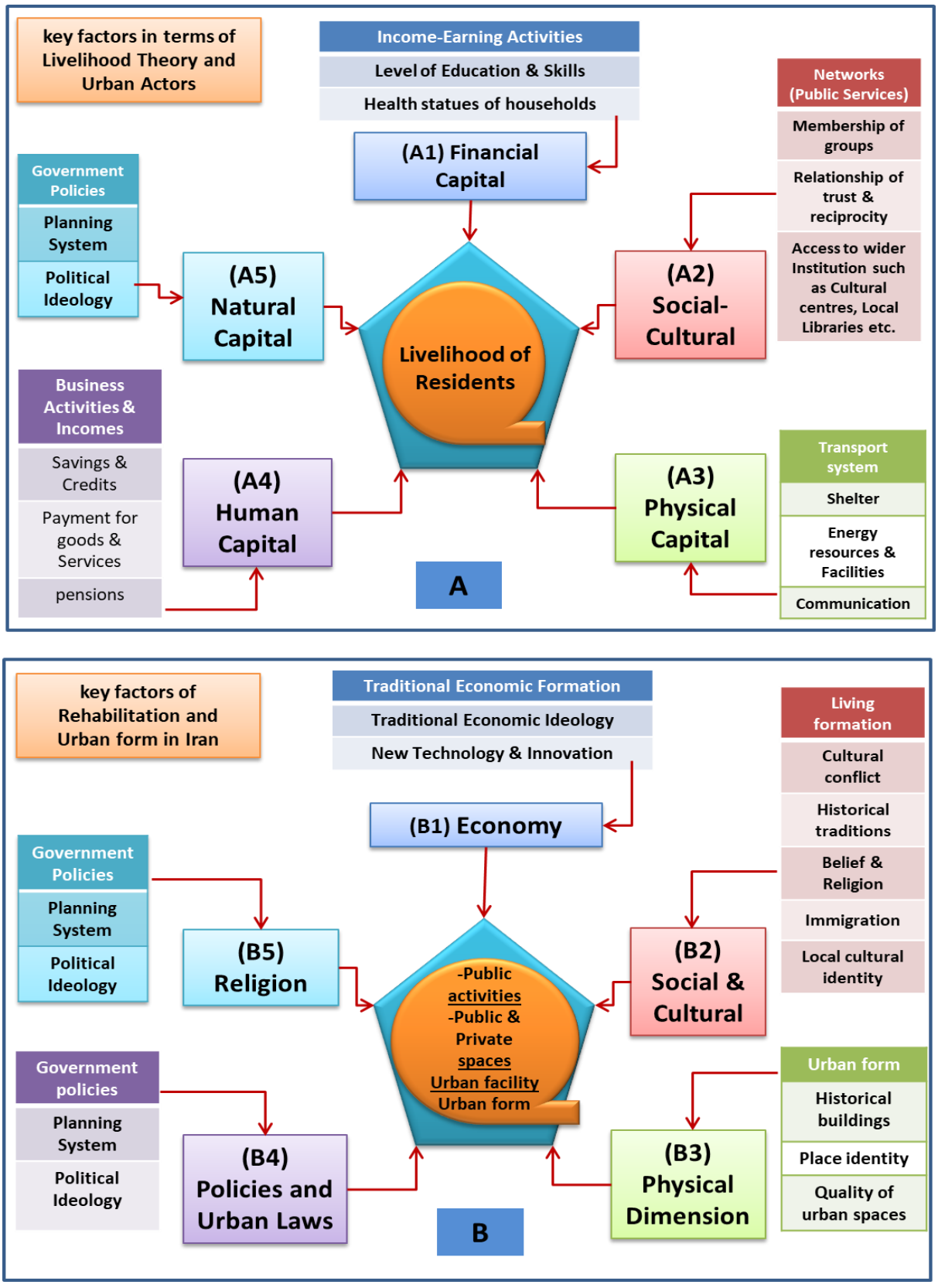

Figure 3. 26 Shows the common factors of livelihood theory and rehabilitation and their interconnections and interactions with each other.

Figure 3.27 presents connectivity between existing key elements in terms of the rehabilitation process and livelihood theory. The interconnectivity leads the research to a better understanding of the role of different factors on the process of rehabilitating historic cities. The elements which are linked between livelihood theory and rehabilitation are colour coded. For example, financial capital from livelihood theory, corresponds to economic factors in the practice of rehabilitation and both are therefore coloured blue. The arrows show that all the elements are interconnected. All these elements need to be considered to form a comprehensive rehabilitation plan. This framework will be used to form a methodology in Chapter 4 and will be the basis of macro-level analysis in Chapter 5 and micro-level analysis in Chapters 6 and 7.

The individual components of rehabilitation not only work separately, but also interact with each other. Each interaction will be analysed separately with differentiated emphases. Firstly, analysis of the relation between political and socio-economic dimensions to spatial dimensions will be carried out, to understand how urban actors affect the physical form of the city. Secondly, the social and cultural aspects will be dealt with, to understand how urban morphology can define perception of place. Thirdly, social and cultural dimensions will be discussed to show how meaning connected to the experience of place can influence and be influenced by spatial dimensions.

Finally, the interactions that relate to time, space and human activity are considered in order to understand the contextual interaction linking past and future, parts and the whole, local and global forces, for the rehabilitation of historic cities.

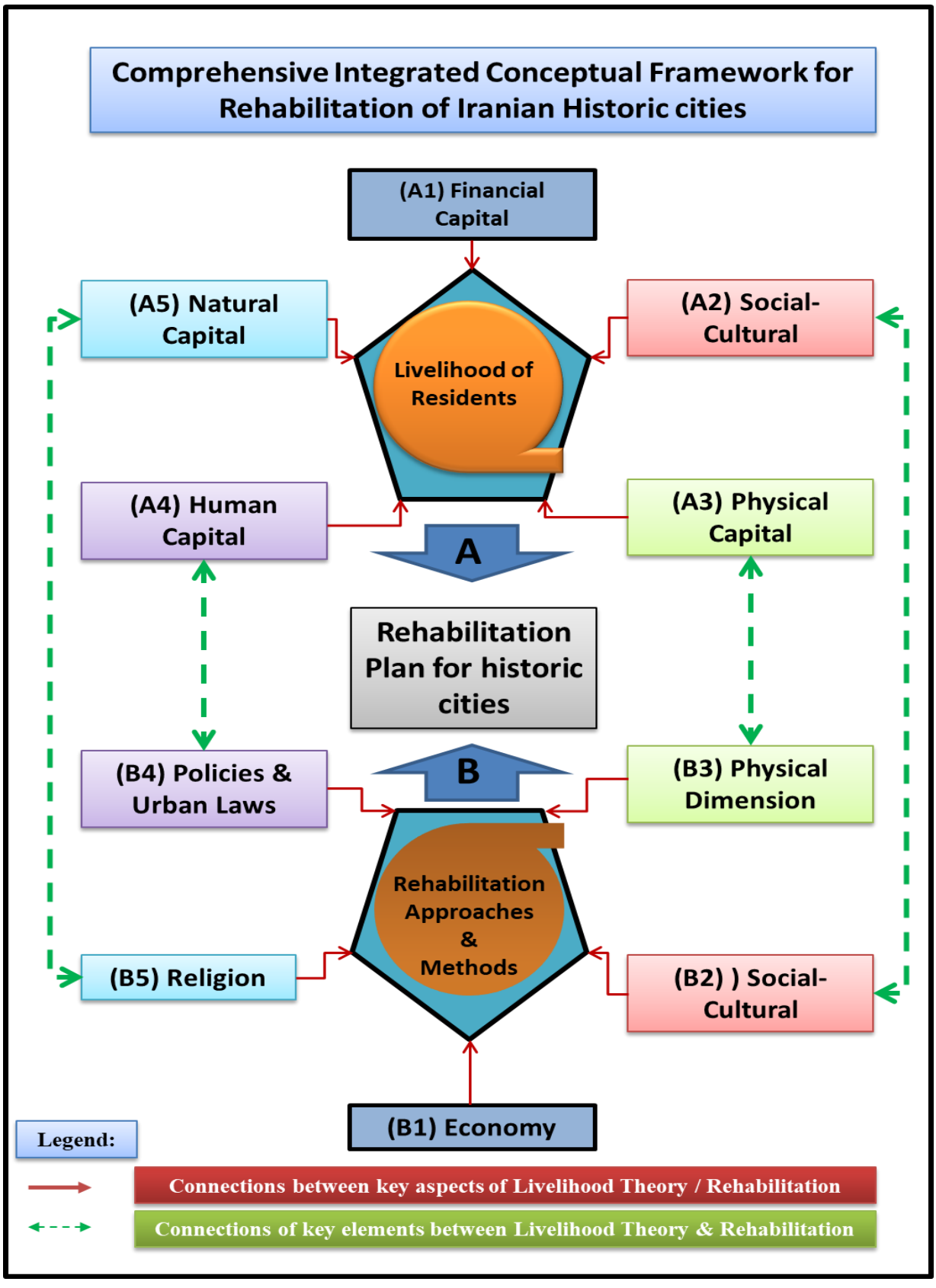

Figure 3. 27 Integrated conceptual framework for rehabilitation historic cities in Iran, particularly for Shiraz Historic core.

Conclusion

This chapter has achieved the objective of developing an integrated conceptual framework, as the basis for analysing and understanding the key challenges that are currently facing the historic districts of Iranian cities and to make a connection with the key elements of livelihood theory to support the rehabilitation of Shiraz historic fabric. To achieve this, it carried out the following steps:

1) Characterisation of key concepts, approaches and principles to identify dimensions and components;
2) Establishment of socio-spatial interactions to identify urban actors, urban morphologies and design qualities
3) Development of the conceptual framework for analysis, including dimensions, components and interactions.

This chapter has answered the question asked in the introduction to the chapter: "How can urban historic fabrics in Iran be rehabilitated with consideration of religious law and the livelihood of residents?"

Based on the characterisation of concepts, approaches and principles, and the establishment of interactions between five key factors, this chapter identified the key components and interactions of a conceptual framework. The key elements at the core of socio-spatial interactions are:

a) Human agency
b) Urban form
c) Meanings

The interactions between and within dimensions and components allow understanding of:

a) How urban actors affect urban form
b) How urban morphology and design qualities affect the use and perception of places
c) How policy and economy affect the formation of urban areas
d) How urban life is related to space and human agency

The key dimensions and components in the conceptual framework for analysing rehabilitation of historic cities are:

- Political and socio-economic dimensions: a) political ideology of Islamic cities; b) policy cycle and planning system
- Social and cultural dimensions: a) use and experience of the place, b) meanings associated with the place, c) community life
- Physical and spatial dimensions: a) urban morphologies, of natural landscape, land use, streets, blocks, plots and buildings; and b) design qualities such as permeability, legibility, variety and resilience.

This conceptual framework is used in the following chapter to develop a methodology for identifying the characteristics and problems of two historic areas in Shiraz as the foundationn for subsequently driving a series of place-specific rehabilitation solutions.

Chapter Four: Methodology

Introduction

Having established the integrated conceptual framework (see Figure 3.27) for analysing the rehabilitation of historic cities in Iran, based on a combination of livelihood theory and urban morphology, this chapter addresses the research question, "Which methodology can be used to collect and analyse information for identifying the challenges in the rehabilitation of historic fabric in Iran?" The construction of a methodology for assessment of historic Islamic centres is justified by the fact that the clear organisation of evidence will instruct and support rehabilitation strategies in Iranian historic cities, particularly Shiraz.

The third objective of this research, "To use the integrated conceptual framework for developing a methodology for collecting data for analysing the current challenges faced by the historic districts of Shiraz" is addressed in this chapter, so that the sub-questions of the research are answered, to analyse the issue of contemporary growth in Shiraz.

Consequently, the following stages shape the structure of this chapter:

- Identification of research methodology
- Identification of types of data
- Data collection strategies
- Analytical methods
- Method for identifying key problems and developing the rational approach for rehabilitation of historic cities

4.1 Review of Integrated Conceptual Framework

This research has identified a new approach of rehabilitating historic fabric within Iranian historic cities. The main proposition of this study is to develop an urban design method to establish new principles for rehabilitation of historic cities in Iran. A conceptual framework has been identified through literature review in Chapters 1 and 2 and an integrated conceptual framework was developed in Chapter 3. The key components of rehabilitation consist of religion, politics, economics, socio-culture and urban morphology and livelihood. The historic fabric can only be fully understood by an analysis of all these components (Guarini, Chiovitti, Battisti and Morano, 2017). Therefore, the study of rehabilitation of historic fabrics should incorporate the study of all these elements. Therefore, this research is designed to collect and analyse data from all these components in using Shiraz as a whole as the main case study and two neighbourhoods as sub-case studies. The integrated conceptual framework identified that the interaction between the five key elements and the historic fabric should shape the rehabilitation strategy.

This study investigates the rehabilitation of historic cities through the following steps. Firstly, religion should be investigated because it affects politics and economics through trade rules, social activities through Islamic law, and through mosques and madrasas, and formation of the city's physical form. Secondly, politics should be researched to evaluate the urban development policies. Thirdly, economics should be evaluated in order to understand the role of the bazaar in development plans, urban formation, livelihood of residents and human resource development plan. Fourthly, socio-culture must be investigated to identify urban activities, the place-identity, immigration, ethnography and level of education and their connections to policies, economy and religion. Fifthly, urban form must be evaluated to identify the key morphological components and urban design qualities: permeability, variety, legibility, resilience, typology and land use and their relation to religion, politics, economy and socio-culture. Finally, livelihood of the residents should be investigated to identify participation of residents in the process of rehabilitation and assign human and financial, cultural and religious resources in relation a rehabilitation strategy. Therefore, this research requires a mix of research strategies, combining ethnography methods, urban morphology methods, qualitative interviews and questionnaires.

4.2 Identification of research methodology

This research started by collecting archive data to identify the issues faced by historic cities in Iran (see Introduction chapter) and developing research questions (Introduction chapter) to understand how solutions to those issues can be identified. In the process of this investigation, several methods were found (comparative, classification, morphological and ethnography) that were used by other researchers (such as Rodwell, 2008; Steinberg, 1996; Boeri, Gaspari, Gianfrate, Longo, Pussetti, 2016; Hakim, 2013; Ritchey, 1998; Wells, 2015) investigating rehabilitation of historic cities around the world. Approaches to research can be qualitative or quantitative or a combination of both (Bryman, 2012). The chapters preceding this identified that this research has both qualitative and quantitative characteristics.

Ethnography and case study are the qualitative methods chosen to shape the collection and analysis of relevant data to identify practical solutions for rehabilitation of historic cities in Iran, since this research deals with socio-culture, economy, religion, politics, migration, tradition, livelihood and urban morphology. Ethnography involves interviews with urban actors, such as politicians, urban planners and investors, and questionnaires with residents, to ascertain the issues in the urban environment, urban activities and urban physical form and development (Bryman, 2012).

Quantitative methods were used because they highlight fine differences between characteristics in people, and they allowed the researcher to gauge differences between items studied and identify precise definitions of degrees of correlation (Bryman, 2012).

The case study method is suitable for this research because it allows the researcher to explore both individuals and organizations, interventions, relationships, and communities as well as the urban fabric (Yin, 2015; Baxter and Jack, 2008) and helps with the analysis of the issues and solutions for the rehabilitation of historic fabric in Shiraz.

This research uses a combination of deductive and inductive approaches with a combination of urban design theory and livelihood theory to identify practical recommendations for the rehabilitation of historic cities in Iran, particularly Shiraz, which could be extended to other Islamic historic cities in the Middle East. A deductive approach forms a conceptual framework after reviewing theory. Data is then collected and analysed to confirm or reject the theory and the theory is then revised (Bryman, 2012).

An epistemological approach is one that identifies what is acceptable knowledge and what it means to know. It uses a philosophical background to identify what kinds of knowledge are legitimate and adequate (Gray, 2013). It is used in this research because it enables the researcher to recognise which design will work and clarify the issues of research design. The outcome of this approach is that a knowledge base was created, that is the use of livelihood theory in rehabilitation of historic cities.

An interpretivist approach is an epistemological position that requires the researcher to interpret what social action will mean. It interprets the world through classification of cultural and historical backgrounds and how they affect social interactions (Crotty, 1998). Therefore, in an interpretive epistemological approach, the researcher must learn the perspective of the different participants, in the following stages:

1. The participant relates their understanding of the situation
2. The researcher then interprets it.
3. The researcher confirms the interpretation and makes conclusions by using concepts and theories using the principles of his/her discipline, (Mason, 2005; Creswell, 2014).

This approach is used in this research because the cultural, religious and historic elements of historic Islamic cities need to be considered in order to conduct research and present findings for a rehabilitation strategy in historic cities in Iran.

A case-study approach is used. In case studies, an overall, complex understanding of the synergy of the components is necessary, rather than an in-depth examination of a single component (de Vaus, 2001). Therefore, an understanding of the complex socio-cultural, economic and physical form components of historic cities - which are constructed from various actions such as local residents' activities - is suitable for investigating key factors affecting the rehabilitation of historic urban fabrics.

Consequently, case studies can be useful for the analysis of descriptive and explanatory questions (Yin, 2015). By conducting direct observations and data collection in natural settings, the researcher can envisage the nature of the problem and engage in the solution of the rehabilitation of historic cities. A variety of data and data collection strategies are used so that the different needs of analysis of historical elements can be met. Therefore, the quality of a case study approach can be ascertained by the following measures:

- construct validity (the use of multiple sources of data and a chain of evidence);
- internal validity (matching patterns between different cases);
- external validity (generalizability of findings);
- reliability (replicability to be applied in different historic cities in different countries) (Yin, 2015).

Shiraz was selected as a case study through the study of the historic background, maps, because of its historic background which contains pre-Islamic and Islamic architecture and urbanism from around 3000 years ago. The historical data about this city over different periods was collected by reviewing literature, maps and archives. This city, as the capital of the Persian Empire 2500 years ago, has prominence in Iran and was a model for the development of other Middle Eastern cities. The characteristics of Islamic cities are highlighted since it is the location of the tomb of one of the Prophet Mohammad's grandchildren. This tomb and the Islamic government had a powerful influence on shaping and developing the core of Shiraz. It also has historic neighbourhoods with organic urban patterns; Shiraz has various socio-economic and socio-political activities and there is a co-existence of traditional and modern social and economic activities; urban development policies and socio-economic and socio-cultural activities are guided by religious policies and laws; there has been rapid physical and cultural development, which has caused both socio-spatial and physical transformation. Therefore, rehabilitation strategies, methods and techniques for this city can be a pattern for other historic cities in Iran and could also be applied to other Islamic cities in the Middle East, so Shiraz was identified as an ideal case study, Figure 4.1.

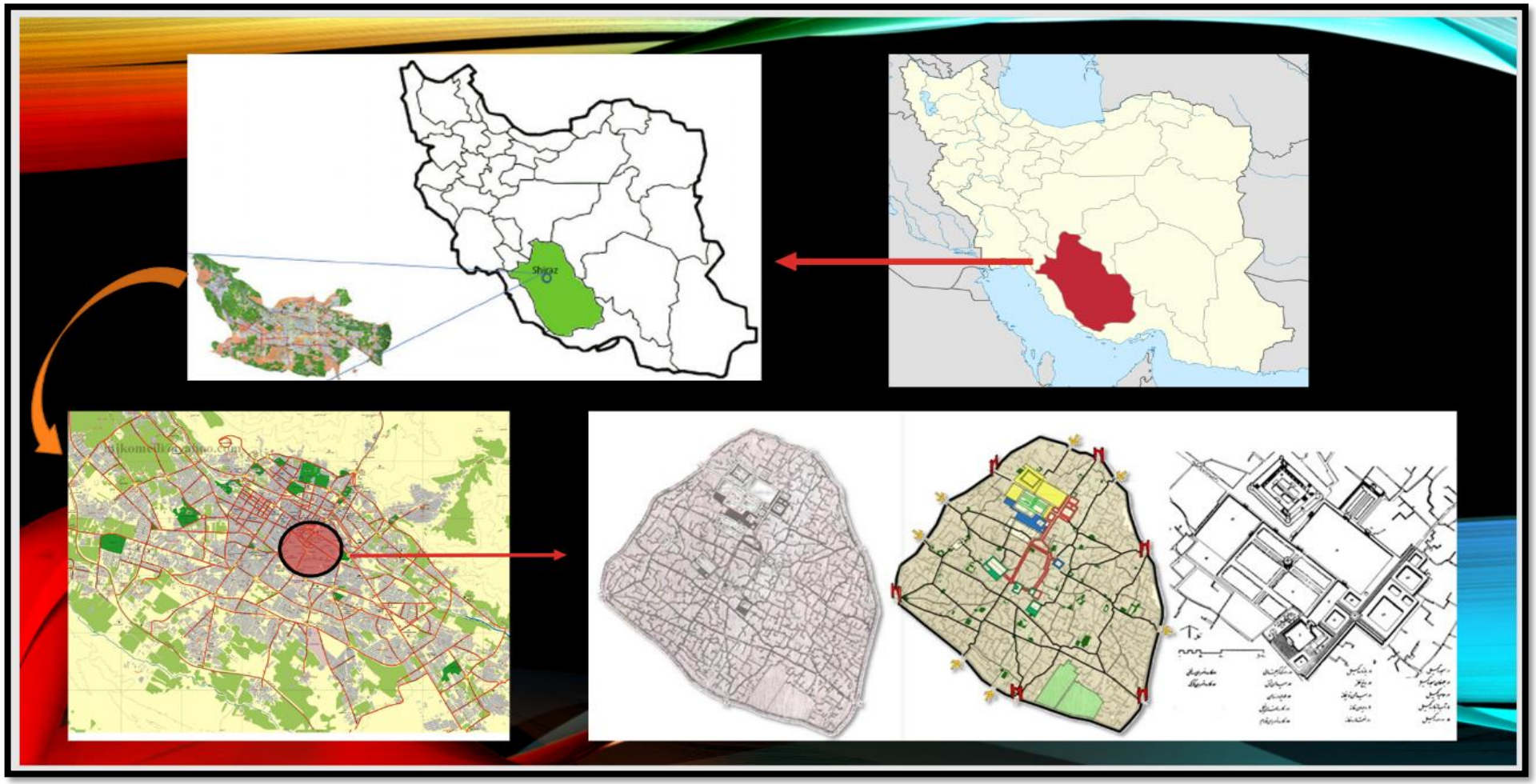

Figure 4. 1 The position of Shiraz city and its historic core within Iran and Fars province. (Source: Google Maps, annotated by Author).

Section 3.9 stated that permeability, variety, legibility and resilience play a key role in urban form. Connectivity and accessibility are also important in urban morphology. Consequently, recent maps of Shiraz historic core were inserted into Space Syntax software by the researcher and analysed for these morphological aspects. The result was identification of areas poor in terms of legibility, connectivity and accessibility. Five dimensions of criteria were developed for selection, as shown in Table 4.1. Two neighbourhoods fulfilling these criteria were chosen as sub-case studies, to collect and analyse in depth, relevant data about religion, politics, economics, socio-culture, urban morphology and livelihood of residents. These neighbourhoods are called Lab-Abb and Es-hagh-baig.

Case study selection criteria	
Dimensions	**Criteria**
Socio-Cultural	Lifestyle, traditions, immigration, cultural identity
Economic	Traditional trading system, new technology
Political and policies	Government policies, development plans,
Physical	Density, urban form, quality of urban spaces, historical buildings, place identity
Religious	Religious law, religious policies & urban formation

Table 4. 1 Criteria for selecting sub-case studies in Iranian historic cities, (Source: Author based on Municipality data).

The research methodology is summarised in Table 4.2, which shows the connections between the chapters, objectives, research approaches and methods with data collection and data analysis for research. The green highlighted cells are shown in greater detail in Table 4.3.

4.3 Identification of types of data

The Introduction chapter, Chapters 1 and 2 used a literature review approach and a comparison method to identify the main issues in rehabilitation of historic Iranian cities. These chapters address the first objective: to identify approaches, methods and techniques of rehabilitation that are used in various historic cities around the world. The data collected includes literature review, maps, historic information, census data and international charters. Data collection was carried out by research into these sources in relation to identifying key issues in historic cities, determining the level of the issues and evaluating the success previous experiences of solving the issues. Analysis of the data noted the development of the city over time and how some factors – socio-culture, economics, politics, religion, defence, traditions, immigration – can affect the physical form and development of historic fabric in historic cities. This analysis guided this research to find out how the problems identified can be dealt with, with consideration of rehabilitation. It led this research to design a conceptual framework to investigate this issue more thoroughly by case study and sub-case study methodology and manage the complexity of the issues in the rehabilitation process by breaking it down to the five key elements: socio-culture, economics, politics, religion and physical form.

In Chapter 3, an interpretive epistemological approach and a deductive approach were used in order to use theory to identify relevant knowledge and develop an integrated conceptual framework for the research. This chapter covers the second objective which is to develop an integrated conceptual framework for understanding the key challenges that are currently facing the historic districts of Iranian cities and to make a connection with livelihood theory to support the rehabilitation of Shiraz historic fabric. A deductive approach was used because it is suitable for examining the factors that have an impact upon individuals' and groups religious beliefs (Kelley and De Graaf, 1997). It allowed the researcher to review literature about rehabilitation approaches, methods and techniques used by various actors in different countries in two groups of cities - European countries and Islamic countries - to identify the strengths, weaknesses, opportunities and threats in the cities selected as examples. It was used instead of an inductive approach - whereby observations and findings drive the creation of a theory – because there already existed much theory, research and experience in rehabilitation of historic cities. Analysis of literature in Chapter 2 shows that religion plays a key role in urban formation in Islamic cities. Kelley and De Graaf (1997) also used a deductive approach for research into the factors affecting the religious belief of individuals.

Therefore, this research will use the findings of the data to produce a set of guidelines for rehabilitation of historic Islamic cities. This chapter uses a literature review to identify qualitative, quantitative and epistemological approaches to answer the research question: "Which methodology can be used to collect and analyse information for identifying the challenges in the rehabilitation of historic fabric in Iran?" It covers the third objective which is to use the integrated conceptual framework for developing a methodology for collecting data for analysing the current challenges that face the historic districts of Shiraz. The chapter identifies the unique data collection and analysis methods regarding the key elements of rehabilitation and theory identified in the previous chapters to find suitable recommendations for rehabilitation of historic cities in Iran, particularly Shiraz historic fabric.

Chapters 5, 6 and 7 use a case-study approach in order to assess the issues at different layers of the city, relating to the five key elements of rehabilitation. These chapters cover the fourth objective which is to use the integrated conceptual framework and methodology for developing and evaluating the key characteristics of the macro-scale and micro-scale to propose recommendations for rehabilitating the historic city of Shiraz. For the purposes of better understanding the rehabilitation of historic cities, a main case study with two sub-case studies have been chosen.

A summary of the data collection and analysis of each chapter is presented in Table 4.2 and a more detailed summary of the data and analysis and how they relate to livelihood theory and the five key elements of rehabilitation is presented in Table 4. The integrated conceptual framework, presented in Chapter 3, identified five key elements of livelihood theory and rehabilitation. Data was collected at two levels, macro and micro, in relation to each of the key elements. The following sections will present the data and data collection for each level of study.

Research methodology structure					
Chapters	**Objectives**	**Questions**	**Research approaches & Methods**	**Data collection**	**Data analysis methods**
Introduction, 1 & 2	To identify approaches, methods and techniques of rehabilitation that are used in various historic cities around the world.	• What is urban intervention in historic cities? and what are rehabilitation approach, methods and techniques? • What have been the outcomes of rehabilitation in international experience?	Inductive Approach; Qualitative method (Theoretical research),	Historic data Maps & Diagrams & photos Literature review (International & National), Government reports International charters	Map analysis Historical data analysis Descriptive Analysis Highlighting key issues
3	To develop an integrated conceptual framework, for analysing and understanding the key challenges that are currently facing the historic districts of Iranian cities and to make a connection with the key elements of livelihood theory to support the rehabilitation of Shiraz historic fabric.	• How can urban historic fabrics in Iran be rehabilitated with consideration of religious law and the livelihood of residents?	Qualitative method (Theoretical research); Interpretive Epistemology Approach; Deductive & Inductive Approach	Literature review & Livelihood Theory Pilot study (Interviews)	Epistemological interpretation Narrative Analysis Charting Mapping & interpretations Coding
4	To use this integrated conceptual framework for developing a methodology for collecting data for analysing the current challenges that face the historic districts of Shiraz.	• Which methodology can be used to collect and analyse information for identifying the challenges in the rehabilitation of historic fabric in Iran?	Qualitative method (Theoretical research)		
5 (Macro-level), 6 & 7 (Micro-level)	To use the integrated conceptual framework and methodology for developing and evaluating the key characteristics of the Macro-scale and Micro-scale to propose recommendations for rehabilitating the historic city of Shiraz.	• How can an urban pattern be preserved in the face of necessary upgrading and changes of land use? • What role do historic quarters and monuments play socially and physically in the local culture? • How do the economy, religion and policies affect the urban form in Macro and Micro level?	Qualitative, Ethnography, Case study Approach, & Quantitative;	Semi-structured Interviews Questionnaires Documents Reports Observation Maps & Photographs	SPSS Analysis SWOT Analysis GIS Analysis RADAR Analysis Map Analysis (Space Syntax Analysis) Morphological Analysis Highlighting key issues
8 & 9	To use the recommendations to propose methods and principles for rehabilitating the historic districts of Shiraz.	• What will be the approach towards urban design for rehabilitation of Shiraz historic fabric? • How can a rehabilitation approach in Shiraz be applied to other Iranian historic cities? • How can a rehabilitation approach be developed with consideration towards livelihood of residents, religious low and urban form in Iranian historic cities?	Qualitative method		Content Analysis of data from chapter 5, 6 & 7

Table 4. 2 The research methodology strategy structure for rehabilitation of historic cities in Iran with particular reference to Shiraz historic fabric.

4.3.1 Macro-level data collection

At a macro-level, archival data were collected from government sources, mainly from the Ministry of Housing and Roads Shiraz branch, Shiraz Municipality and Office of Iranian National Statistics (Shiraz branch). Shiraz Municipality library was the source of secondary data in literary form and government bodies provided maps, documents and development plans. GIS analytical graphs were collected from Pardaraz consultant advisors (Shiraz Municipality advisor on rehabilitation of historic neighbourhoods). Satellite images were obtained from Google Earth and were used to carry out urban morphology analysis.

Data was collected about religious policies, religious buildings and the religion of the residents to help answer the question: *"How do religion, policies and the economy affect the urban form at macro level?"* The data was collected from the census, government reports, literature review and maps. According to the conceptual framework, (Figures 3.26 and 3.27), religion is important in the rehabilitation process because it is connected to urban morphology, politics and living formation and therefore the data was essential to this research.

Political data collected consisted of city development plans from various years; a literature review of Islamic policies and development plans, Iranian planning system and the modern master planning system in Shiraz. This data also helped to answer the above question. Political data was collected because according to the conceptual framework, political factors play a key role in the rehabilitation process because they are connected to religious policies, traditional economic ideology and physical dimensions, therefore this data was important for this research.

Economic data was collected about different local businesses within the grand bazaar. A literature review was conducted about different types of bazaar in Iran over different periods, bazaar structure and the connection of the bazaar to religious and political monuments such as the grand mosque and citadel. In the residential layer, in relation to livelihood, data was collected regarding unemployment, household livelihood, tenancy rates, price of land, rates of rent and residents' income. This data came from the census, government statistics and reports. This data also helped to answer the above question. Economics, according to the conceptual framework, is connected to historical buildings, traditions, religion and religious connections, therefore it was necessary to collect this data.

Socio-cultural data was collected about security, privacy, cultural transformation, level of education, tenancy rates and accommodation. These data came from the census, government statistics and reports in order to answer the question: *"What role do historic quarters and monuments play socially and physically in the local culture?"* The conceptual framework shows the importance of socio-cultural data due to its connection with historical traditions, belief and religion, local cultural identity, place-identity and quality of urban space, therefore this data was important for this research.

In relation to urban morphology, data collected was house typology, connectivity (of streets, alleys and passages), climate, land use, block and plot use, road network, neighbourhoods, organic structures, local materials, classification of buildings and monuments. These were collected by field observation such as photography, analysing maps, census and government data. Urban design qualities (permeability, legibility and variety) were measured by using Shiraz historic maps in Space Syntax software, provided by UCL University. Resilience was measured by photography and GIS map analysis. This helped to answer the above question and the data was necessary to collect because the conceptual framework shows urban form's connection to religion and urban form; quality of urban space is connected to local cultural identity, belief and religion, historical traditions and immigration.

4.3.2 Micro-level data collection

In order to investigate both the five key elements of rehabilitation and livelihood theory at a micro-level, a variety of both qualitative and quantitative data was collected.

Data at micro-level about **religious factors** consists of: maps regarding the location, development and history of the Grand Mosque and local mosques; literature review of historic background on the city regarding pre-Islamic and Islamic religion; the accessibility of mosques from residential and commercial areas was assessed by questionnaires answered by residents in the pilot survey (Appendix 4); census data regarding beliefs of residents (whether they are Sunni, Shia, Christian or Jewish) was collected. This information was entered into the SPSS database and analysed which helped to identify locations, issues and solutions for rehabilitation.

A pilot survey was conducted using random sampling of 15 residents, whereby the researcher accessed a postcode database, imported the postcodes into an Excel file and randomly selected 20 postcodes, of which 15 responded, to identify the positive and negative issues in relation to rehabilitation. This then allowed the author to develop the conceptual framework, which in turn informed the development of questionnaires and semi-structured interviews.

A main survey was conducted, with questionnaires being conducted with residents, by making contact with local community representatives who delivered questionnaires to residents, collected the responses and returned them to the researcher. The residents were asked about their perceptions of urban transformation as a process and product. The questions asked were organised into groups around the ethnicity of the residents, their social behaviour, religious beliefs, immigration status and livelihood (see Appendix 3). In each sub-case study neighbourhood 400 residents were asked to answer a questionnaire of which 350 responded (a sample of the questionnaire for local residents can be found in Appendix 3). The high response rate was due to the dissatisfaction of residents with the quality of the urban area and they were keen to give feedback and participate in the decision-making process. Appendix 3 analysis of results shows that the rate of females answering the questionnaires in both sub-case studies was around 70%. This is because the questionnaires were distributed during the morning, when the male members of the household were at work, and the females, who stayed at home, responded to the questionnaires. This sample size was determined based on a population of 5300 in each neighbourhood, a margin error of 5%, a confidence level of 95% and a distribution of 50%. These figures were entered into a website (www.raosoft.com, 2004) and the sample size was determined using the formula

$$x = Z(c/100)2r(100-r)$$

$$n = N\,x/((N-1)E2 + x)$$

$$E = \mathrm{Sqrt}[(N - n)x/n(N-1)]$$

Where N is the population size, r is the fraction of responses that you are interested in, and Z(c/100) is the critical value for the confidence level c (www.raosoft.com, 2004). This information was entered into the research database and analysed with SPSS software.

Political data at micro-level included development plans and building policies. Information about building materials, dimensions of the buildings, age of buildings, era of buildings and building typology (to investigate to what degree this conformed with policy) and valuable architectural elements was collected from Fars cultural heritage department report and field-study observation and analysis by the researcher. Information about public participation in managing urban affairs and rehabilitation of residential areas was collected from ten semi-structured interviews with members of Shiraz municipality, members of Ministry of Housing and Roads (Shiraz branch) and constructors and designers. Interaction and communication between the Ministry of Housing and Roads, municipality and local councils with utility providers was assessed through the semi-structured interviews. Information about urban management systems, environmental and historical cultural aspects, and information about strategies and objectives of management at regional level was collected from government reports, revisions of governmental development plans from various years (1965, 1982, 1996, 2007 and 2012). The information was analysed by SWOB analysis and the outcome showed the strengths, weaknesses, opportunities and threats faced by the historic fabric of Shiraz, in the whole city and in particular in these sub-case study areas.

The key stakeholders – that is individuals who have an organisational role or expertise in the case being studied (de Vaus, 2001) – can provide valuable insights into the economics, effects of policy on the residents' and city development (Bryman, 2008). During interviews for this research, open-ended questions were asked to the key stakeholders to allow full understanding of the issues involved and so that these issues can be followed up (see Appendices 1 and 2).

Semi-structured interviews consisting of a mixture of open-ended and multiple-choice questions were therefore conducted with:

A) Controllers (2 from Shiraz Municipality, 2 from Shiraz Historic Municipality and 2 from Ministry of Roads and Housing)

B) Producers (2 representatives from The Cultural Heritage, Handicrafts and Tourism Organization)

C) Mediators (2 Designers from Pardaraz Consultancy)

During the interview, the history and traditions of Shiraz were discussed, as were the policies of mixed land-use, quality of urban spaces and the relationships between different

departments acting on the historic fabric. A key characteristic of ethnography is that tradition is intrinsically intertwined with the beliefs of people and their identity. Therefore, the stakeholders were interviewed by answering a set of questions provided by the researcher. A qualitative matrix of interview questions relating to the key dimensions of rehabilitation is presented in Table 4.4.

A range of experts involved in design and development in Shiraz were also interviewed during the fieldwork stage. These key stakeholders were asked about the rehabilitation techniques that are currently employed in historic cities (see Appendix 2). They discussed the formation of the city, the livelihood and culture of the residents, how the residents interact in the city and the policies of urban development.

Economic data at micro-level consisted of reports and census data provided by the Iranian Statistical Department about types of commerce, economic activities, trading, importing and exporting and products made by hand or technology. Questionnaires were conducted with residents regarding occupation, tenancy or ownership, annual expenditure, commuting within the historic fabric, where they shop and what kinds of products they buy, which commercial centres they prefer (grand bazaar, local shops or suburban malls) and income (Appendix 3). This showed the researcher: the lack of appropriate platform for job opportunities in the sub-case study areas; the commercial potential within the neighbourhoods; the economic weaknesses of the residents and of the historical development budget, and the economic potential of the neighbourhoods.

Data was collected at micro-level about **socio-cultural** factors regarding: immigration and ethnicity; level of education; participation in social activities; family size; privacy; security; highly-regarded historical centres in the neighbourhoods; traditional systems and social support; endowment and charity support; family stability and balance between males and females; immigration to and from historic neighbourhoods; variations of social investment due to diversity of ethnicities and lack of social integration; quality of the healthcare system; population of neighbourhoods; criminal activities, and behaviour and motivation of investors in neighbourhoods. This information was collected from government reports, census data, questionnaires with residents. The outcome was that the researcher could identify strengths, weaknesses, opportunities and threats in terms of socio-cultural factors and to identify the optimum solutions for the issues identified in the neighbourhoods.

To investigate urban form at micro-level, **morphological data** from each neighbourhood studied was collected through maps of streets and passages and by coding buildings. The physical morphology of the areas, urban form elements and their transformation over time, were analysed by comparing old and current maps, surveys and reports from official sources and photographs, as well as fieldwork data from morphological and typological surveys. The accessibility and connectivity of the neighbourhoods were assessed by examining the streets', alleys' and passages' typology and connectivity. The quality of buildings was assessed through coding buildings, use of maps, architectural studies, photography and observation.

Chapters 8 and 9 used the data and analysis from Chapters 5, 6 and 7 to present findings and recommendations for the rehabilitation of the historical area of Shiraz. These chapters cover the fifth objective which is to use the recommendations to propose methods for rehabilitating the historic districts of Shiraz.

As explained previously, Chapter 3 introduced the integrated conceptual framework, which is the result of attention to five key aspects of rehabilitation: socio-culture, economics, religion, politics and urban morphology, as well as livelihood theory. It was explained that a deductive and interpretive epistemological approach was appropriate. Therefore, data collection was planned according to each of the key elements of rehabilitation and of livelihood theory. The data collection methods and their relation to rehabilitation and livelihood theory are shown in Table 4.3 and the qualitative interview matrix is shown in Figure 4.4.

Data Collection & Analysis of key Elements of Rehabilitation in Shiraz Historic Fabric			
Key elements of rehabilitation	**Data collected**	**Method of collection**	**Method of analysis**
Urban form	Neighbourhood formation Accessibility Connectivity Quality of buildings	Historic data Maps & Photographs Coding the buildings &Materials	Mapping analysis Space Syntax Analysis Morphological Analysis GIS Analysis
Economy	Bazaar Local shops Location and function of bazaar and shops	Maps Literature reviews & Diagrams Field study & Interviews Government reports Census data	Mapping analysis Morphological Analysis GIS Analysis
Socio-culture	Social activities Traditions	Historic data Maps & Photographs Literature reviews Field study survey Government reports Census data	SPSS Analysis SWOT Analysis GIS Analysis RADAR Analysis Narrative Analysis Highlighting key issues
Religion	Friday Mosque Local mosques 5x daily prayer Religious schools Church & synagogue	Historic data Maps & Photographs Literature reviews Census data	SWOT Analysis GIS Analysis RADAR Analysis Morphological Analysis
Politics	Development policies Municipality Ministry of Road and Housing	Literature reviews & Historic data Government reports Field study & Interviews Semi-Structure Interview	SWOT Analysis GIS Analysis RADAR Analysis Highlighting key issues
Livelihood Theory	Ethnicity Emigration Resident age Housing age Income of residents Quality of life and infrastructure Occupation Gender Living costs Family connections Urban services	Literature reviews & Historic data Government reports Field study Questionnaire Census data Observation	SPSS Analysis SWOT Analysis GIS Analysis RADAR Analysis Highlighting key issues

Table 4.3 The data collection and analysis methods used for Macro-level and Micro-level case studies.

Dimensions	Interview questions
Religious	What is the role of Grand Mosque in the formation of the historic fabric? How can religion affect development policies? How can religion affect the urban activities? How much can religion influence land use and economy in historic cities?
Policies	How were historic cities in Iran shaped? What were the key factors in that regard? What is the interrelationship between urban development policies and religious policies? How can urban development policies affect resident participation in urban activities and improvement of their life?
Economy	What is the role of the Bazaar in the urban economy structure in Iranian historic cities and in Shiraz historic fabric? How do local shops play their role for improving economy in local society in Shiraz? What are the economic strengths, weaknesses, opportunities and threats in Shiraz historic fabric? What importance do livelihood aspects such as income, wellbeing, vulnerability of the residents have in relation to the rehabilitation of historic neighbourhoods?
Socio-Cultural	How much does immigration to and from the historic core affect cultural patterns? What is the role of local communities in the process of urban quality improvement? How much does the level of education of residents affect the rehabilitation of the historic fabric? How can the identity of the residents in historic fabric be revived? And with which approaches and techniques can cultural values and monuments be rehabilitated? What aspects do you think are important for integration historical culture with contemporary modern environment?
Morphology	Do you support the idea of mixed land use for different people, needs and interests? In which aspect of the morphological level you think it is important to integrate the historical areas with modern areas? In which aspects can urban infrastructures affect the process of rehabilitation within historic areas?

Table 4. 4 Qualitative interview matrix based on different dimension of rehabilitation historic cities (Appendix 1)

Analytical methods

4.4 Methods for analysing religious data

Data collected about religion was analysed by SWOB analysis, GIS analysis, morphological analysis and RADAR analysis. SWOB analysis identified the strengths, weaknesses, opportunities and barriers regarding religious monuments, religious activities and religious law. In the SWOB analysis, strengths were identified through the multiple-choice questions asked in interview. GIS analysis showed the percentages of residents who are Shia or Sunni Muslim, Christian or Jewish and maps out locations within neighbourhoods of the different religious followers. Morphological analysis showed the typology of the houses and street patterns regarding Islamic law. RADAR analysis showed the accessibility of religious monuments to residents. The outcome of this is that it shows how religious factors affect socio-culture, physical form and economics.

4.5 Methods for analysing political data

Political data was analysed by SWOB analysis, GIS analysis and RADAR analysis (found in chapters 5, 6 and 7). In terms of SWOB analysis, the researcher analysed the semi-structured interviews with political representatives in Shiraz municipality, Ministry of Housing and Roads and local neighbourhood representatives, and analysed the strengths, weaknesses, opportunities and threats of Shiraz development plan, historic housing protection plans, charters applicable to the historic core and the action plan. GIS analysis shows which areas of the historic core are less developed or have better facilities and infrastructures and the satisfaction level of residents regarding urban services and community support. RADAR analysis showed the percentages of resident participation in urban activities by establishing new laws and policies. This enabled the researcher to understand structure of the development policies and identify approaches to development and construction at macro and micro level by consideration of Islamic law.

4.6 Methods for analysing economic data

Economic data was analysed by GIS analysis, map analysis, morphological analysis and RADAR analysis. GIS analysis showed the range of residents' income in Shiraz historic core, the rate of tenancy and ownership; land and house prices and rental rates; the number of local shops, residents' occupation, the cost of living, the value of houses and land in different neighbourhoods and the variety of businesses in different neighbourhoods.

Map analysis showed how these economic components are located in different parts of Shiraz historic fabric, how they connect with each other and other key elements of rehabilitation and how it affects economic activity. Morphological analysis showed the bazaar typology, and the connection of the bazaar to residential areas, to main route ways and gates, and to the main citadel. RADAR analysis showed the satisfaction levels of residents regarding the accessibility of the bazaar. This enabled the researcher to identify how rehabilitation can improve the quality of the economy in the historic fabric of Shiraz.

4.7 Methods for analysing socio-cultural data

Socio-cultural data was analysed by SPSS, SWOB analysis, GIS analysis, narrative analysis and RADAR analysis. SPSS analysed the gender of the residents; education levels of residents in the historic fabric; immigration levels within the historic fabric and from outside the historic fabric, and ethnicity. SWOB analysis identified the strengths, weaknesses, opportunities and threats of the social structure of the Shiraz historic fabric. GIS analysis identified quality of neighbourhood relations; inclination rate to participate in urban activities; social class of residents; tenancy rates; density of immigrants in the historic fabric; unemployment rates and crime rates. Narrative analysis identified some of the key issues in the historic fabric in terms of social activity and behaviours, identity of residents and beliefs and traditions in different areas. RADAR analysis showed the importance of the social elements to the residents interviewed. This analysis enabled the researcher to identify how rehabilitation can improve the social activities in the historic fabric of Shiraz.

4.8 Methods for analysing urban morphology data

Urban morphological data was analysed by map analysis, GIS analysis, Space Syntax analysis and RADAR analysis. Map analysis showed the development plan of Shiraz historic core over time; the location of the monuments within the historic area; tourist attractions; neighbourhood centres and cultural centres.

Natural features were analysed by map analysis which showed the topology and topography of the land. Streets and open spaces were analysed using map analysis, which showed information about vehicle accessibility, transportation, street patterns and connectivity between different elements of urban form. Blocks and plots were analysed using GIS analysis which showed quality of land and urban structure and different macro zones in the historic fabric.

Buildings were analysed using map analysis, which showed the typology of houses and buildings; and GIS analysis which showed the quality of housing and housing structure, value of buildings and number of storeys of houses. Patterns of use were analysed using map analysis, which showed residential and commercial zones; and GIS analysis which showed cultural buildings; religious buildings; economic buildings; intervention zones; rehabilitation zones, and accommodation zones. GIS analysis also showed priorities of planning and interventions.

Morphological and Space Syntax analysis showed the urban design qualities (permeability, legibility, variety and resilience) of Shiraz historic fabric. RADAR analysis showed the percentages of the quality of urban spaces, houses, urban facilities and infrastructure. The analysis enabled the researcher to see the connections between the five key elements from the integrated conceptual framework and how they shaped the historic fabric, their strengths, weaknesses, opportunities and threats and to start to gather recommendations for rehabilitation.

4.9 Livelihood study

All the above data collection and analysis supports livelihood theory because it focuses on evolving thinking about poverty reduction, the way the poor and vulnerable live their lives, and the importance of structural and institutional issues and shows how people relate to one another.

4.10 Content analysis of qualitative interview and quantitative data

Qualitative interviews and recorded narratives were analysed for content. This method is useful in qualitative research. All data collection utilised semi-structured interviews and questionnaires developed by the researcher (Bryman, 2008). The data on local perceptions gleaned from interviews was grouped into five dimensions (socio-cultural, economic, political, religious and physical), noted and analysed.

Low (2002) noted that human behaviour can only be understood in the context of people's daily life, life world and activities. Observational, phenomenological, historical, ethnographic, and discourse approaches methods support this research (Low, 2002). By analysing the content of the qualitative interviews, the perceptions held by residents regarding the problems and issues of the urban formation relating to rehabilitation of historic fabrics are revealed. Each of these approaches focuses on distinct aspects of the social world and approaches vary in terms of their appropriateness for different problems, their levels of analysis, and the role of researcher.

This study identifies observational morphological and ethnographic approaches for the historic city of Shiraz. These methods focus on the community and individuals within the community, which is crucial to this study. At present, observational methodologies have become increasingly relevant to qualitative research (Low, 2002).

Ethnographic methodologies are broader and include the historical, as well as the social and political, context of the site as means of understanding contemporary socio-cultural patterns and cultural groups (Low, 2002).

Ethnographic methodologies (Table 4.5) address identifying local area use and disuse and, more importantly, understand the motivations, norms, values, intentions and symbolic meanings underlying that use and disuse. For example, while phenomenological research can elicit statements of place attachment and place identity, ethnographic research describes the place attachments of groups within the geographical community. In addition, ethnographic approaches focus on socio-cultural values as a central part of research endeavour (Bryman, 2008).

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Table 4. 5 Qualitative methodologies in cultural anthropology: research appropriateness. (Source: Author; adapted and developed from Getty Conservation Institute, 2002).

However, historical analysis method seeks to make sense of the past through the disciplines and systematic analysis of the traces it leaves behind (Moughtin et al., 1999). Also, agency role analysis method is specific for eliciting actors' roles and responsibilities within urban growth practices.

It is in key events in relation to place identity where it is possible to analyse the participation of actors of urban transformations (Giddens, 1984). To assess the physical context of Shiraz central historic core, apart from using qualitative methods as explained above, the statistical package for the social sciences (SPSS), was employed to interpret the outcome of the questionnaires in order to get the general, average and representative perception of local community groups inhabiting the historical core of Shiraz. It must be noted that among the proposed five tiers of assessment as explained in the previous section, part of those assessments which involve physical investigation of the central core incorporates quantitative method as it would allow the interviews of large numbers of people using questionnaires.

4.10.1 Level of analysis

The integrated conceptual framework identifies that the five key elements of rehabilitation (religion, politics, economics, socio-culture and physical form) should be examined and analysed at two different scales: city-wide and neighbourhood level, because rehabilitation revives neighbourhoods that has ceased to exist and reintroduces these neighbourhoods to the urban system, future-proofing them. Therefore, this research carries out data collection and analysis at both city and neighbourhood level.

4.10.2 City level analysis

City level analysis investigates the origin of the city and how the city was formed in order to identify the traditions, culture, architecture and urban activities in the city as a whole. In this regard, the first action was to examine the historical background of the city in the process of socio-economic, cultural and spatial formation. The outcome was the revelation of how the city centre was shaped and developed in different periods and how economic centres, religious centres and socio-cultural centres were established in the historic core of Shiraz city.

The second action was to examine factors that changed the process of policy making, planning and decision management in order to identify how the development policies can affect the city master plans and their relation to the key factors of rehabilitation in the historic fabric.

The third action was to evaluate the economy by examining the role of the bazaar in the historic fabric, by assessing economic activities such as income of residents, trading and the influence of the bazaar on the formation of the historic core.

The fourth action was socio-cultural evaluation by assessing: immigration patterns to and from the historic core, literacy rates, ethnography, beliefs of residents, social cohesion and cultural transformation. The outcome shows social stratification.

The final action was an urban morphology study, evaluating the transformation of the city by identifying the organic structure, local materials, climate consideration, built forms, security and identity, privacy, building values, urban facilities, religious buildings and cultural monuments.

A greater-depth analysis of the key elements of rehabilitation was carried out in the sub-case study areas. Two sub-case studies were selected by reviewing the results of city-level analysis with the selection criteria presented in Table 4.1 in this chapter.

4.10.3 Sub-case study level analysis

The second level of analysis discusses the two sub-case studies in detail by examining the key aspects of rehabilitation which mainly focus on physical form and components and urban socio-economic factors.

The sub-case study analysis started by examining the history of the sub-case study followed by examination of the historic street pattern, introducing valuable historic features, access, forms, quality of legibility and pathology of the passages. These examinations employed a morphological approach to understand the structure of the neighbourhoods and traditional settlements.

This was followed by an examination of socio-cultural aspects. This examination employed an ethnographic approach, to understand the structure of the traditional settlements and initial construction, and to understand traditional activities. This was followed by political, economic and religious aspects. These examinations employed qualitative and quantitative approaches to understand the deficiencies of practicality in urban development policy, interrelationships between rehabilitation key components, strengths, weaknesses, opportunities and threats of each key element of rehabilitation at neighbourhood level. According to the data collection methods presented in section 4.3, and the explanation above, the results of the ethnographic study, urban morphology study, survey analysis and mapping were analysed to establish the factors affecting the rehabilitation at micro-level of each sub-case study, by identifying the strengths, weaknesses, opportunities and threats.

4.11 Method for identifying key problems and developing the rational approach and policies for rehabilitation of historic cities

Having established the key factors which may affect any potential rehabilitation plan in each sub-case study, the next stage is to establish which issues may affect the physical and management aspects of rehabilitation. Rehabilitation can also involve a variety of other intervention methods such as conservation, revitalisation, renewal, construction, regeneration, protection, repair and adaptation, as mentioned in Chapter 1. The assessment of the physical context is intended to reveal aspects of urban design qualities that are directly related to the rehabilitation and management of historic urban areas in sub-case studies. The urban design qualities in this phase are employed to reveal the physical attributes of the historic urban environment based on permeability, legibility, variety and resilience but the relevance of the above urban design qualities is revisited in the assessment of the social context and the final integration of assessments in Chapter 9. Table 4.6 shows the research methods employed for the assessment of urban design qualities.

Table 4. 6 Research Methods selected for the Assessment of the physical and management aspects of Quality in the historic central core which is adapted for Shiraz (Author, based on Punekar, 2010).

However, as the relationships and disputes between key actors in the city directly affect the form of the city, the form-production process at city level was analysed. This aims to investigate how different key urban actors in the development plan influence the process of rehabilitation in historic districts. In this regard, this section identifies the people and organisations involved as the key sources of information in this research. The resulting map of stakeholders (Table 4.7) is instrumental in our choice of interviews to understand and to identify the key actors, their aspirations and objectives, their relationships relative to each other, and their motivation for involvement in the rehabilitation process (Carmona, 2014).

Actors / Agents			Types
Regulations	Local urban planners		Interview pro-forma A
	National urban planners		
	Local urban managers		
	National urban managers		
	Managerial agency members		
Producers	Investors (Local – National – International)		Interview pro-forma B
	Funders (Banks and Financial institutions)		
	Builders (Local & National)		
	Consultants & Advisors		
	Build and development corporations		
Users	**Citizen (Residents Businesses)**	Adjacent Landowners	Interview pro-forma C
		General public	
		Residents in projects (Tenants & Owners)	
		Public sector employee- Civil service section	
		Private sector traders	
		Everyday users	
	Other consumers	Short time users (Pilgrims – Tourists)	

Table 4.7 Different Stakeholders involved in the process of policy-making, producing and using of the cases selected for investigation.

This examination at neighbourhood level and city level shows the key potential for, and problems associated with, urban development and regeneration in Shiraz historic fabric, by reviewing key factors alongside relevant theories, approaches and methods discussed in Chapters 1 and 2. The five key assets of livelihood theory and the five key assets of rehabilitation identify the connections between these assets and elements that affect the rehabilitation process of historic cities. In this regard, Table 4.8 shows which assets and components are related to each other, by categorising the key aspects which fall into each category.

Livelihood natural capital
Land
Water
Natural resources

Physical dimensions				
Density	Urban form	Historic buildings	Place identity	Qualitative urban spaces
Government policies	Traditional economic formation	Historical tradition	Local culture identity	Immigration
	Living formation	Religious & urban form	Belief & religious	New technology & innovation
		Traditional economic formation	Religious & identity	

Livelihood social cultural
networks
Membership of groups
Relationship of trust and reciprocity

Social & cultural					
Living formation	Cultural conflict	Historical traditions	Belief & religious	Immigration	Local identity
Physical urban form		Historical buildings	Place identity	Quality of spaces	

Livelihood natural capital
Land
Natural resources

Politics		
Government policy	Planning system	Political ideology
Religious policies	Physical urban form	Traditional economic formation

Livelihood Human Capital
Business activities & incomes
Saving & credits
Payments for goods or cervices
Pensions

Economic		
Traditional economic formation	Traditional economic ideology	New technology & innovation
Physical urban form	Religious & policies	Religious & connection
Living formation	Government policies	Quality of urban spaces

Livelihood social-cultural
Membership of group
Relationship of trust and reciprocity
Access to wider institution

Religious			
Religious policy	Religious & identity	Religious & urban form	Religious & connections
Traditional economic ideology	Physical urban form	Physical urban form	Government policy
	Living formation	Historical buildings	Traditional economic formation
	Place identity		
	Historic tradition		
	Belief & religious		

Table 4.8 Relationships of the key elements of rehabilitation and livelihood theory from the two sub-case studies and the key potential for and problems associated with urban development in relation to rehabilitation process.

Figure 4.2 summarises the interactive process of the research, by presenting the connections between literature review, theory, methodology, analysis of case study and sub-case studies. Finally, it shows how the outcome of analysis is used to present the recommendations and final conclusion.

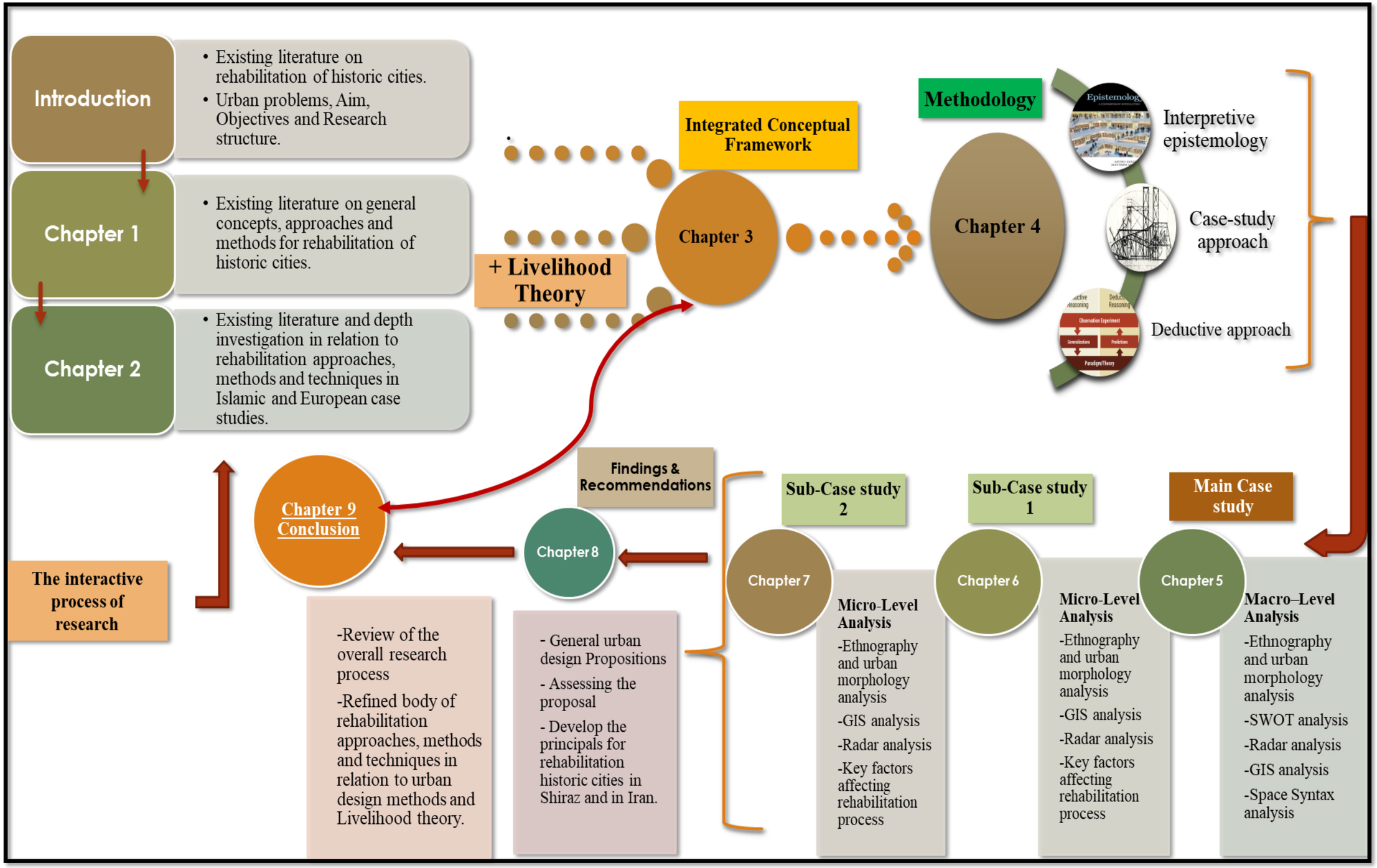

Figure 4. 2 The interactive process of the research.

Conclusions and Further Implications

In this chapter an appropriate research methodology for analysing rehabilitation interventions in Shiraz's historic fabric was developed. In answer to the research question: *"Which methodology can be used to collect and analyse information for identifying the challenges in the rehabilitation of historic fabric in Iran?",* based on the integrated conceptual framework, it identified that rehabilitation is a complex combination of several key factors, each of which has subcategories which interconnect with each other (Figure 3.26). In this regard, the chapter has outlined a strategy for data collection and analysis. The third objective of this research – to use the integrated conceptual framework for developing a methodology for collecting data for analysing the current challenges that face the historic districts of Shiraz – has been fulfilled in this chapter. The methodology guides the overall research stages of the thesis. In the first section of this chapter the conceptual framework was reviewed and integrated to define an appropriate approach for the research. The framework suggests that rehabilitation and other methods of interventions in historic fabrics is intrinsically connected to socio-cultural, economic, political, religious and physical dimensions and is affected by social actors through their interactions with the urban form, culture and traditions. This process is sometimes revised due to interactions between people and development plans. Therefore, both qualitative and quantitative research using an interpretivist epistemology have been used to support the scope of the research. In carrying out the research, a deductive approach was utilised. The conceptual framework, as well as being used to select the main approach of the research, also provided the criteria for selecting the main case study – namely Shiraz historic core – and for the sub-case studies. Types of data and data collection methods have been identified, which will be used to collect data in the field and to carry out the analysis. The analytical methods to be used, which were selected using the conceptual framework as a guide include: an ethnographic study, urban morphology and urban design qualities study, qualitative interviews, quantitative surveys and inquiry by design methods. The analytical methods will then be used for the analysis of the case study at two different levels – macro-level or city level and micro-level or neighbourhood level – in order to ascertain the factors that influence the rehabilitation process and to determine final recommendations. Finally, the methodology developed in this chapter will be used in the next four chapters to carry out data collection and analysis at city level and sub-case study level. The city level data collection and analysis are covered in Chapter 5 and sub-case study data collection and analysis are covered in Chapters 6 and 7.

Chapter Five: Shiraz Case study analysis in Macro-Level

Introduction

The aim of this chapter is to evaluate the key macro-scale characteristics of the historic core of Shiraz. This will provide the foundations for some preliminary recommendations for the rehabilitation of the historic centre of Shiraz together with indicative guidance that could be of value to other historic cities in Iran.

Chapters 1, 2 and 3, state that effective rehabilitation encompasses various aspects of life including politics, the economy at both national and local levels along with socio-cultural considerations that include religious, values, and traditions. This chapter focuses on key indicators affecting rehabilitation. This is achieved by means of an exploratory case study that focuses on Shiraz.

For the reasons outlined in the Introduction to this thesis, Shiraz was chosen as a case study with a view to answering the following questions:

"How do religion, politics and economics affect the urban form at the macro (and micro) level?"

"How can a rehabilitation approach improve both the socio-cultural environment and physical form at the macro level?"

The case study begins by addressing the first question: "*How do religion, politics and economics affect the urban form at the macro-level?"* In order to answer this question, this research examines the role of religious monuments and their deployment process in Shiraz historic fabric. Although this study examines the policies and approaches adopted by the government during the past decades, the main focus is on post-1997 policies and practices that have shaped the current context. It will also examine the economic and socio-cultural factors it will then discuss how these factors have shaped the physical characteristics of the historical core of Shiraz and its neighbourhoods.

5.1 The role of religion in shaping the urban form

In Chapter 3, section 3.5 identified that the formation of Islamic historic cores is based on key monuments such as the mosque, bazaar and citadel. Hence, the presence of these monuments identifies Shiraz historic core as an Islamic city. Several other monuments, which are connected to these key monuments, were then built around them.

Therefore, this section identifies the role of these monuments in shaping the urban form in Shiraz historic core. The planning of Iranian cities is grouped historically into two main eras: pre-Islamic and post-Islamic. This makes them distinct not only from Western cities, but also from other Islamic cities (Sharifi and Murayama, 2013). Pre-Islamic styles are said to date from 9th century BC to the 7th century AD when the Arabs conquered the Sassanid Empire and Islam was brought to Iran (Habibi, 2008). In the pre-Islamic era, cities were shaped by the location of fortresses and military bases, trade routes, different neighbourhoods based on hierarchical social classes.

The arrival of Islam led to structural changes to Iranian cities in order to conform to the requirements of Islam. The introduction of community mosques was perhaps the factor which had the greatest effect on the urban form. These were usually constructed in central locations and their presence was required in order for a settlement to be considered a city (Habibi, 2008; Sharifi and Murayama, 2013). The requirements of Islam meant that a community mosque had to have a direct connection with other main elements of the city: the bazaar, residential areas, public baths and the citadel (Sharifi and Murayama, 2013).

The community mosque has held a significant position in Iranian urban life because it is accessible from all residential areas, and therefore by people from all socio-economic groups. Furthermore, it is a forum for discussions on many topics, whether social, economic or political, and has been cited as a factor which grouped people together to act politically, such as in the 1979 Islamic Revolution (Kheirabadi, 2000).

In Islamic ideology cities consist of:

- Centre of religion: Grand Mosque
- Centre of politics: Castle (Kohandej)
- Centre of economy: Bazaar
- Socio-cultural centres: Neighbourhoods (Sharestan)
- Areas outside of the city wall such as the cemetery (Houmeh)

In each neighbourhood there is a community mosque with one grand mosque for the whole city. Thus, religion, politics and the economy were connected physically. In Shiraz, this is achieved by connecting the Grand Mosque with the bazaar and the Karim Khan Castle, in the shape of a triangle. Figure 5.1 shows the connections between these elements within the historic fabric of Shiraz.

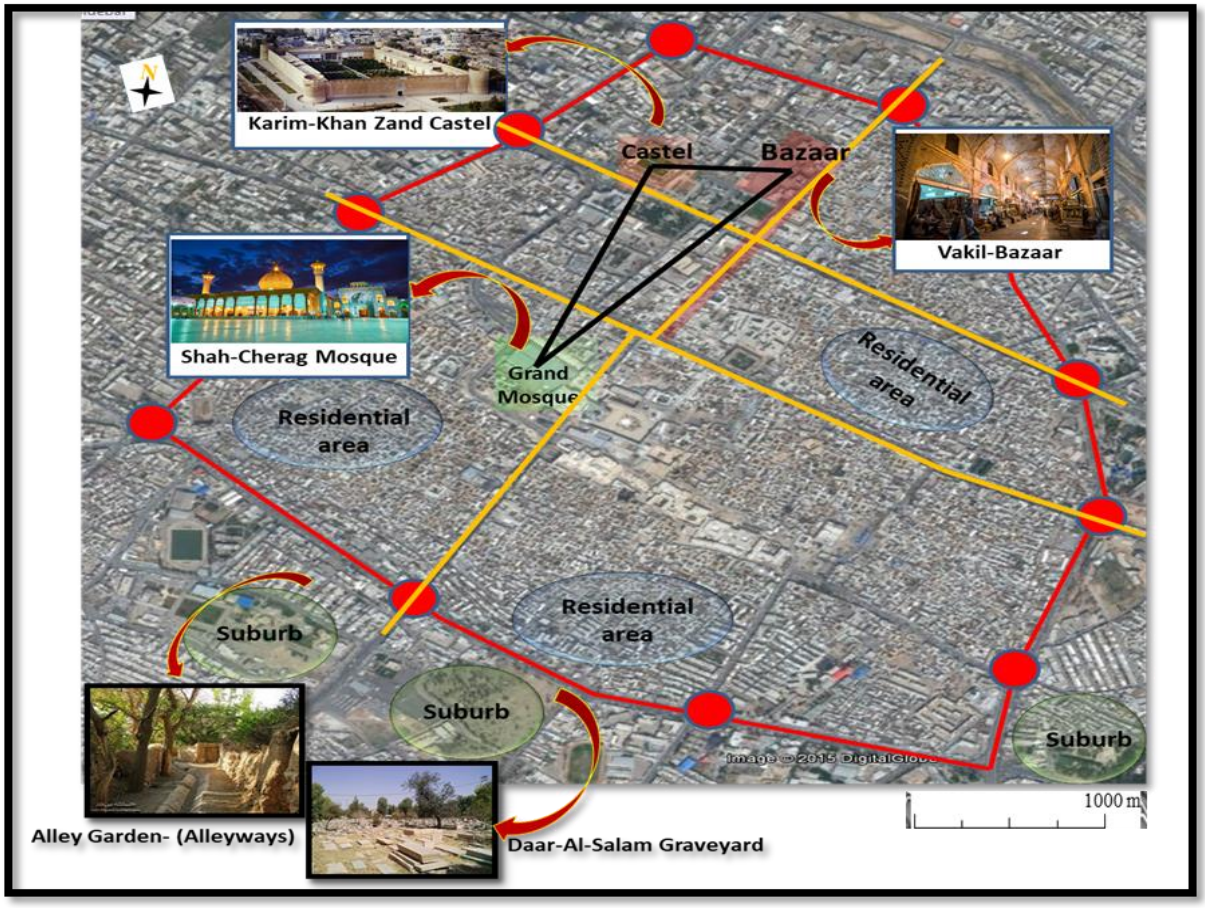

Figure 5. 1 The location and connection between Grand Mosque, Bazaar and Government castle in Shiraz historic fabric; (Source: Google Images, annotated by Author).

In Shiraz, the community mosque in each neighbourhood has a religious function and is also a place for educating residents. The local authorities can make contact with residents easily and collect required information through the mosque. In Shiraz, the shape of each neighbourhood was formed based on the independence of each individual and of groups, respect for family privacy, security and retreats (Figure 5.2).

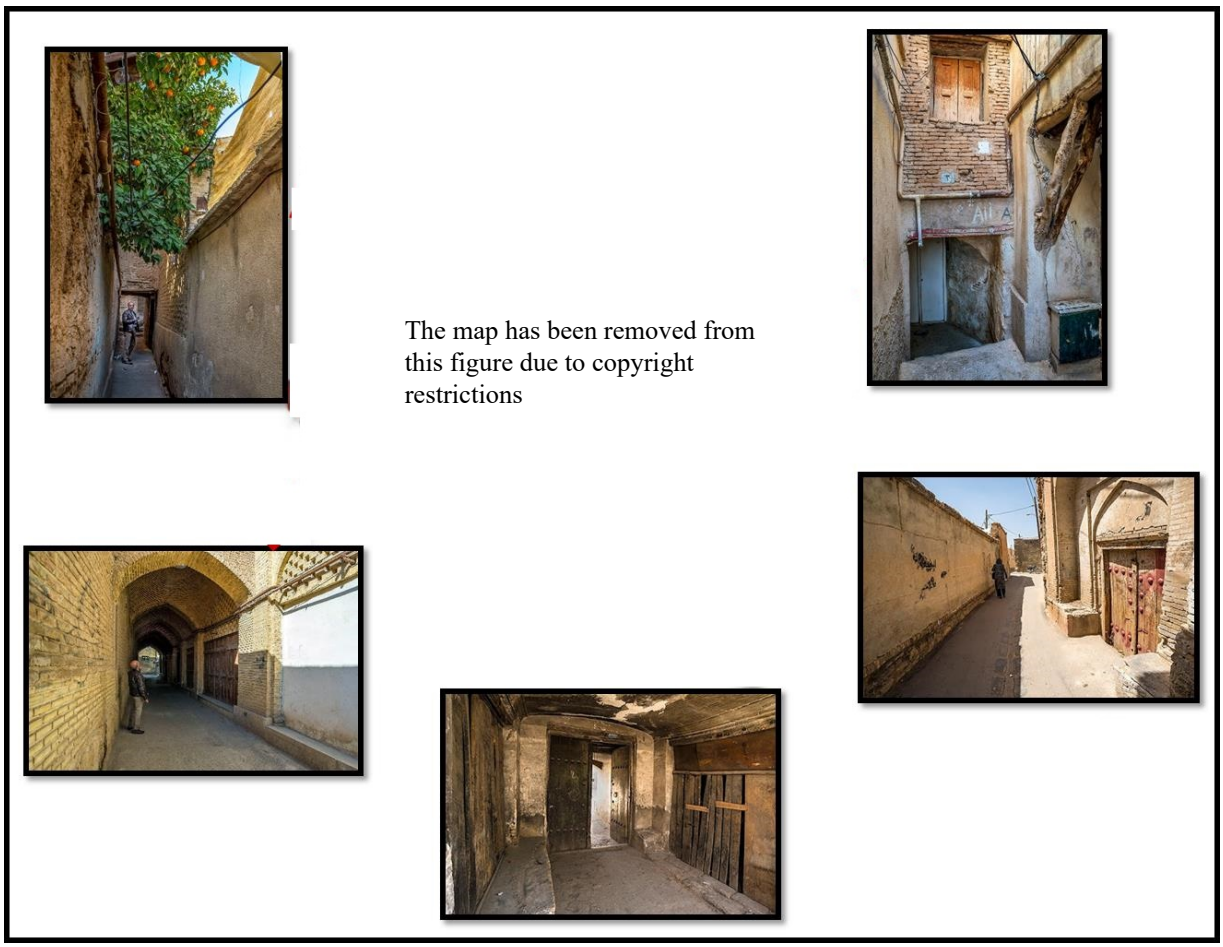

Figure 5. 2 Examples of privacy and security in Shiraz historic fabric; (Source: Maps: Shiraz Municipality, Photographs: Author).

By keeping the boundaries of the neighbourhoods and protecting the privacy of houses, the function of dead-end streets and alleys, having independent residential units, and also the existence of a shared life in the neighbourhood are the distinguishing characteristics of Shiraz city. Neighbourhoods have a key role for residents; they often have large houses, for which residents have strong personal attachment. Each neighbourhood also has some local shops, with various trade guilds and some have public baths (Figure 5.3).

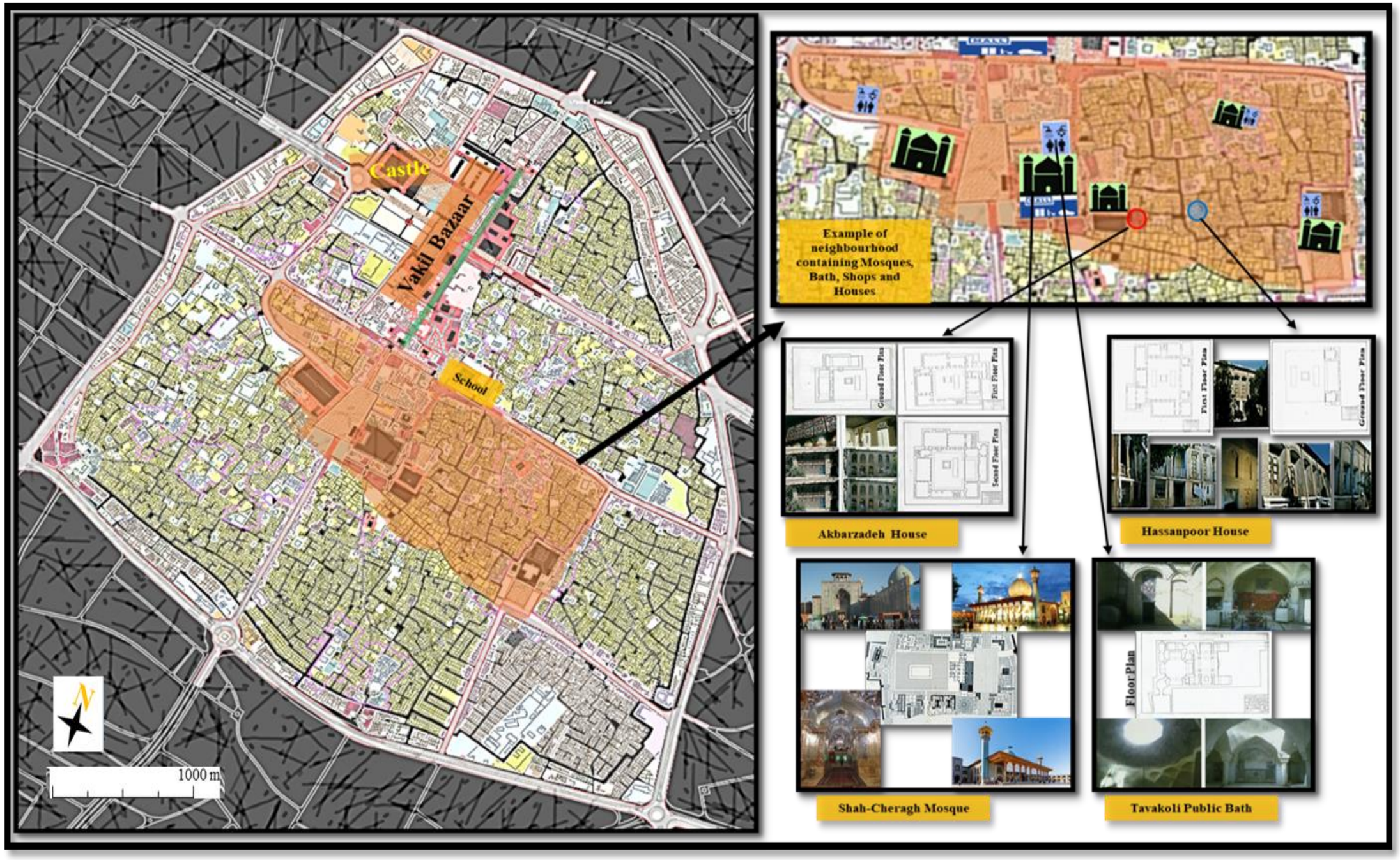

Figure 5. 3 Examples of typical features of Iranian cities in Shiraz historic fabric; (Source: map generated by the author, using Shiraz Municipality GIS system and census data).

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Figure 5. 4 Clockwise from left: Figure-ground map to show the relationship between built and unbuilt space in Shiraz historic core; Map to show connections between Shiraz historic core with surrounding areas in Shiraz; Location of key religious monuments such as bazaar, mosque and citadel in Shiraz historic core; Location of Shiraz historic core in Shiraz city. (Source: Author based on Shiraz Municipality report, 2015).

Neighbourhoods are close-knit communities with a concentric structure based on a hierarchy embodied in the religious and social ideals of Islam. It is a world where people live together, pray together and share their visions. The aim is to gather not to disperse.

Figure 5.4 shows that: there are a number of unbuilt spaces in the historic core; the historic core contains a number of important monuments such as the bazaar, Grand Mosque and citadel, and the historic core is somewhat isolated from the rest of the city due to the peripheral roads running around the edge of the historic core.

According to the literature review (Balbo, 2012; Hakim, 2013; Meshkini, Habibi & Alizadeh, 2013), Islamic cities including Shiraz, in addition to having a Grand Mosque, bazaar and castle had an observatory, library, Sagha-Khaneh (place for drinking water), schools, shrine and charitable foundations (Figure 5.5). Therefore, in this section one may conclude how great an impact religious factors have had on the socio-political relations, as well as on the formation of the urban fabric.

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Figure 5. 5 Notable urban facilities in Shiraz historic fabric; (Source: Author based on Google Images).

The Shah-Cheragh complex, which influenced the formation of Shiraz, is located in the heart of Shiraz historic fabric. It is connected to the Vakil Bazaar from the north and has several important monuments such as the New Mosque in the west and the Atigh Mosque in the east, the Khan School - a famous religious school located to the north of this urban complex - and Nasir-Al-Molk mosque located in the north-east (Figure 5.6).

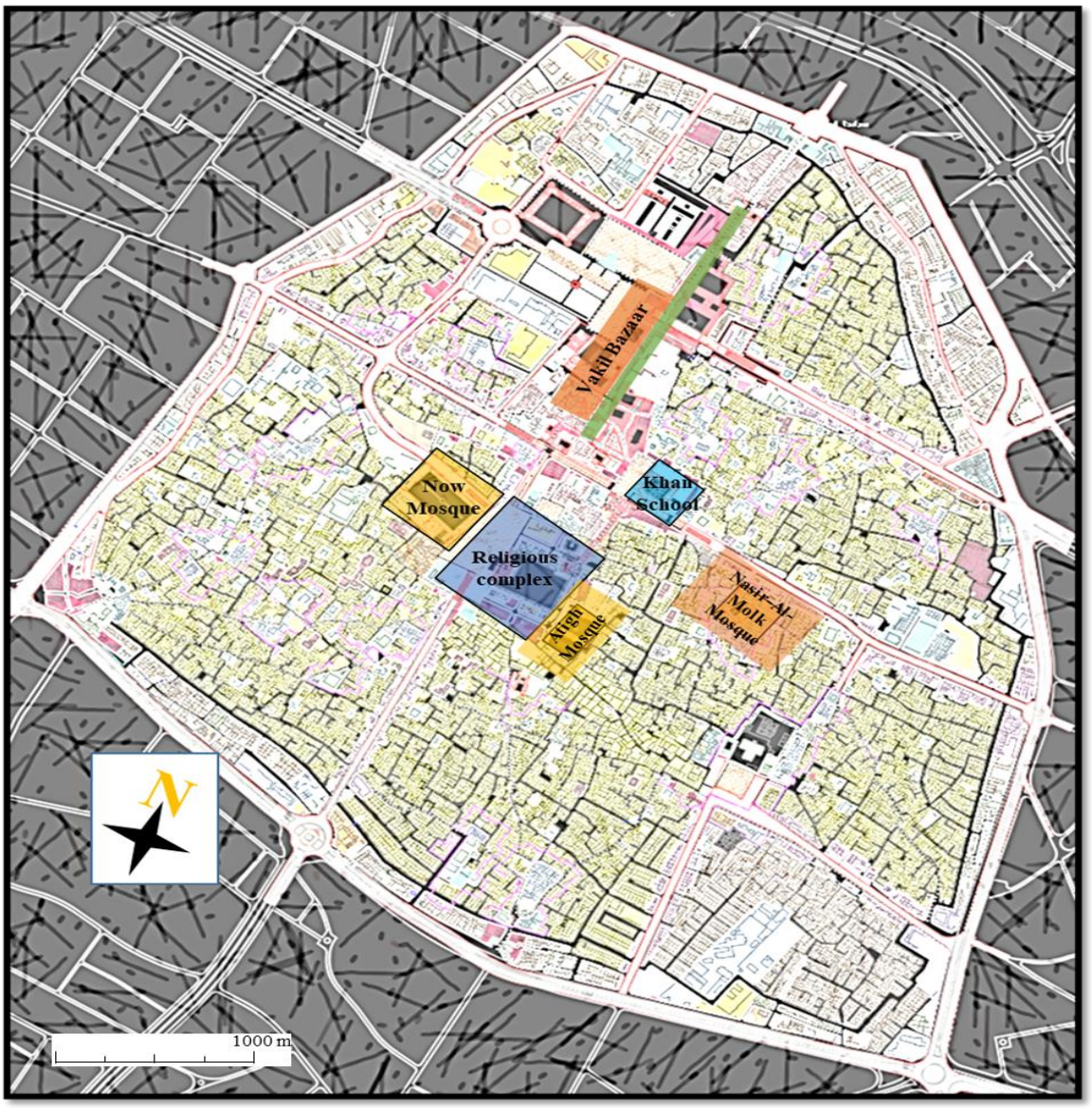

Figure 5. 6 The location of religious complex and its connection to Commercial and education centres in Shiraz historic fabric; (Source: map generated by the author, using Shiraz Municipality GIS system and census data).

Figure 5.7 shows the location of religious buildings within Shiraz's historic zone and their connection with the bazaar, neighbourhood centres and government buildings. It also shows how the role of religious buildings is important for the rehabilitation of Shiraz's historic core: residential areas, economic zones and political zones were shaped and developed around these religious buildings. Furthermore, these religious centres have a strong influence on social activities within the historic core. They also have strong assets such as public charity lands that can use this potential for rehabilitating historic neighbourhoods.

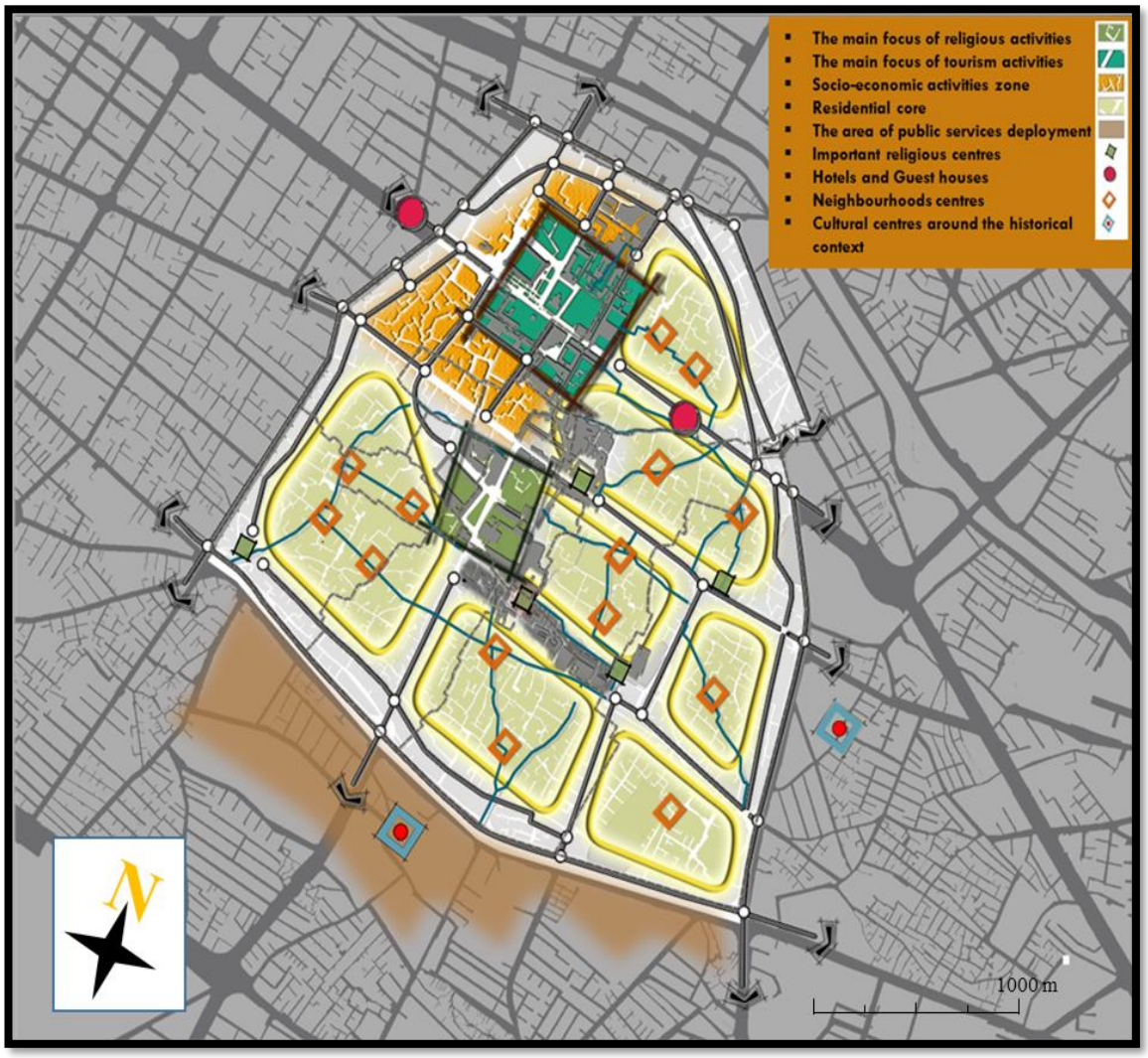

Figure 5. 7 The location and connection between Shah-Cheragh Mosque, Bazaar and Government Castle in Shiraz's historic fabric; (Source: map generated by the author, using Shiraz Municipality GIS system and census data).

5.2 The role of politics in shaping urban form

According to the literature review of this research, Shiraz city comprises eight districts; the historic core is known as District 8, with an area of approximately 376 hectares, located in the North West of Shiraz. This district has a smaller area compared to other districts of this city and is surrounded by District 2 on three sides, and until recently it was part of District 2. Districts 1 and 3 lie to the North and North-East of the historic core. Figure 5.8 and 5.9 show the location of these districts.

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Figure 5. 8 The location of the historic core, District 8, amongst the eight municipality districts which comprise Shiraz; (Source: www.shirazpedia.ir).

Figure 5. 9 The subdivisions of the municipality districts of Shiraz, (Source: Shiraz Municipality anotated by Author).

As well as these administrative subdivisions of Shiraz, it was identified through fieldwork observation by the researcher, that there are five key organisations play an important role in the rehabilitation process of Iranian historic cities. These are:

- The Ministry of Energy (Gas, electricity and water)
- The Ministry of Housing and Roads
- The Ministry of Telecommunications
- The Home Office (Municipality level)
- Cultural Heritage, Handicrafts and Tourism Organisation

However, this research focuses solely on the master plan and detailed plan.

5.2.1 Shiraz historical context

Chapter 3, section 3.5 identified that the formation of Islamic historic cores is strongly influenced by Islamic law, which affects the shaping of streets and connection of houses to public spaces. Similarly, urban spaces were formed in terms of the hierarchy of private space, semi-private space, semi-public space and public space in the historic fabric. Therefore, this section will identify the role of the planning system in shaping the urban form in Shiraz historic core over the course of history and through policies at a local, national and international level, to identify how this research can use these findings to propose a rehabilitation strategy.

The aim of the design of the royal site, during the Zand dynasty (1751-1794) was to form a link with the main chain of the grand bazaar and governmental houses, which extends from the historic district, to become part of the overall structure of the city. A map survey shows that this part of the city was planned to accommodate new residencies needed for the important people of the capital. Despite the available forces for a total transformation, the people in charge of the planning decided to integrate the old with the new into one city.

Whereas the new part was supposed to provide grandeur and excellence, the old part was retained for its vitality and energy. The result was a rational plan that achieved the reconciliation of two apparently contradictory concepts: preservation and renewal. This is an exemplary achievement, which should have been appreciated and learnt by contemporary urban design. Unfortunately, this lesson was totally forgotten when, more than two hundred years later, the planning of the city was again on the agenda. However, Karim Khan's heirs failed to secure his gains, and when Aqha-Mohammad Khan, the founder of the Qajar dynasty, eventually came to power in 1794, he destroyed the city fortification and moved the national capital to Tehran. Although reduced to the rank of provincial capital, Shiraz maintained a level of prosperity as a result of the continuing importance of the trade route to the Persian Gulf and its governorship was a royal prerogative throughout the Qajar era.

Many of the beautiful gardens, buildings and residences built during the nineteenth century, contribute to the present-day appearance of the city.

5.2.2 The Iranian planning system

Policies in respect of urban rehabilitation in Iran are both controversial and paradoxical. Two competing approaches shape the contemporary Iranian experience. The first is focused on change and economic development. The second is concerned with preservation and conservation. Development-dominated approaches have a marked tendency to dismantle valuable historic fabric (Hanachi, 2011). Regeneration and direct macro-intervention have led to prestigious, large-scale projects in historical areas, whilst the conservation-oriented approach seeks to preserve the historic fabric. Interviews with proponents on both sides of the argument suggest that current policies are primarily economically motivated (Appendix 1).

According to literature, urban planning in Iran covers approximately 40 years of development experience. Since the 1999 census, there have been 350 such plans. Indeed, the head of the department of urban planning in Shiraz Municipality (Appendix 1), stated that modern urban planning laws and regulations are a major source of difficulty in addressing issues associated with the historic fabric of Iranian cities. In response to the question, *"How does current urban development law affect Shiraz's historic fabric?"* he referred to a planning paradox and argued that current regulations have not only had an impact on the rehabilitation of the historic context; they have also changed the morphology of the historic fabric resulting in a loss of identity, culture and tradition. He went on to suggest that without new urban planning tools, planners are obliged to adhere to established practice. This favours strategic and structural revision designed to accommodate planner's visions of changing societal expectations and the dynamics of globalisation. What is required he argued, was a tool that would promote reconciliation between two opposing philosophies.

On the one hand there is the dominant paradigm that prioritises economic growth and the alternative that prioritises conservation and preservation that does not always recognise contemporary social needs and aspirations. The characteristics of the two opposing philosophies are presented in Table 5.1.

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Table 5. 1 The characteristics of the two opposing philosophies in relation to Iranian planning system (Source: Shiraz Municipality).

This paradoxical tension has resulted in administrative confusion. An interactive model of development planning and rehabilitation is needed to promote the engagement of private sector investment in the historic fabric that can deliver restoration and the adaptive reuse of socio-cultural buildings. Such engagement calls for respect for communities and their cultural and religious artefacts that promote a sense of identity on the one hand whilst simultaneously facilitating economic growth and prosperity on the other. To achieve this, communities need to be involved in a dialogue about their hopes and aspirations.

5.2.3 Modernisation and Master planning in Shiraz

Analysis of different historic maps collected by the Ministry of Road and Housing in Shiraz, has identified rapid modernisation in Iranian cities as a major problem. Modern avenues have been driven through areas of ancient heritage (Karimi, 1998, 2002). Such studies have shown that this type of intervention during the 20th century has created a profound disruption between past and present and has led to a significant deterioration in the historic centres. Planning in Shiraz is influenced by the following national protection laws.

5.2.4 Iran National Monuments Protection Law (1930)

- Article one: All industrial works, buildings and locations which have been constructed up to the end of the Zand Dynasty in Iran including moveable and immoveable properties. So, under Article 3 of this law, they are assumed to be Iranian national monuments and artefacts and are under the protection and supervision of the government.
- The National Monuments Protection Law (1930) and its executive constitution (1932) hold that the end of the Zand Dynasty is considered as the point at which any monument can be considered of valuable cultural heritage. However, the existence of any other value and aesthetic point has been ignored even though the antiquity factor was not the only value-creating factor. This has overshadowed the governing paradigm over all the relevant measures to protect historic monuments.
- In 1930, Article one was ratified for the National Monuments Protection Law based on which the Ministry of Culture and Art was allowed to register the immovable works with significant historical or political features regardless of their date of appearance in the list of domestic projects.

5.2.4.1 Constitution of Iranian Cultural Heritage Organization (ICHTO) in 1988

- Article 1: Definition: Cultural heritage includes the monuments and works of people from past times that indicate the actions of humans through history and, in identifying them, the ground is prepared for the recognition of identity and cultural changes for them and thereby some representative samples are provided for humans.

These laws are influenced by international charters such as the Athens Charter and the UNESCO International Convention of World Cultural and National Heritage (1972). Furthermore, Shiraz historic core is a UNESCO World Heritage Site. These charters, which influence planning in Iran and Shiraz are summarised below.

5.2.4.2 Athens Charter

- Article 65: Architectural assets must be protected, whether found in isolated buildings or in urban aggregations.
- Article 66: They will be protected if they are the expression of an ancient culture and if they respond to a universal interest. For this purpose, the historical monuments of great value shall be protected; of course, in this case it is not necessary to protect many iterative samples, so it is sufficient to protect limited samples, which serve as historic documents.

5.2.4.3 UNESCO International Convention of World Cultural and Natural Heritage (1972)

Cultural Heritage in Shiraz is defined and protected by the following statement: 'They are a cluster of separated or aggregated buildings, which are architecturally unique…'

Due to the recognized beauty of building clusters in the historic core, groups of buildings have been taken under protection. Although protection maintains the buildings, it has failed to help the main bazaar and smaller bazaars economically. Furthermore, the structure of the old city of Shiraz has been gradually subjected to commercial development (Falamaki, 2005). Disturbances and lack of knowledge are hindrances in its protection and reconstruction.

Therefore, it is evident that these regulations need some improvement in order to be useful for Shiraz historic core. During fieldwork study, several buildings and monuments were identified in Shiraz historic core to which these laws apply. Although those approaches were effective for a short time, in the long term, they lost their effectiveness based on the non-compliance of logical relationships between components and the dominant culture in this historic fabric.

According to reports by the Iranian Ministry of Housing (Iranian Ministry of Housing Report, 2012), Master planning in Iran started in 1960s. Before this era the act of road building was rigorously promoted in different cities, but there were no holistic plans. The decisions were ad-hoc and poorly integrated. The need for master plans emerged when cities grew rapidly, and Iranian planners embraced Western planning methodologies. This led to a comprehensive programme of master plans for all cities that addressed the following:

A) road networks

B) land use

C) open spaces

D) blocks

E) plots

F) building density

G) building materials and components

It is clear that through the control of these elements, the use of master plans began to achieve the initial goals. After the first programme of road building in Shiraz, the first comprehensive plan was produced by Tehran University, Department of Architecture in 1966. The plan was radical (Figure 5.10). A rectangular grid of roads designed for cars was superimposed on the older grid without regard for the historic evolution and older patterns of growth. The usable land area for different urban factors increased from 22 sq. km in 1962 to around 80 sq. km in 1992.

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Figure 5. 10 Shiraz proposed Master Plan in 1966. (Source: Shiraz Municipality).

The bazaar area appears as simple polygons. Street frontages were densely packed (Figure 5.11), and each rectangular urban block was given a neighbourhood centre, a learning centre and some schools.

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Figure 5. 11 Shops located outside the Bazaar in Shiraz historic centre. (Source: Shiraz Municipality).

In the event, the comprehensive plan was not fully implemented. Only some of the major streets proposed by the plan were built. New streets intersected with other older thoroughfares. A second master plan was prepared by Naghshe-Jahan-Pars Consultants circa 1988 (Figure 5.12).

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Figure 5. 12 Shiraz proposed Modern Plan in 1988; (Source: Author based on Shiraz Municipality report 1988).

To evaluate the impact of these master plans, maps have been compared. Old maps from around 1970 have been contrasted with contemporary ones. The findings are as follows:

Findings from comparison of old maps of Shiraz with contemporary maps
The historic structure of the city has partially disappeared
The Royal District and its connection have lost their significance, as the historic thoroughfares no longer exist.
Modern grid-iron patterns dominate the structures of the city.
The core of the city appears to have shifted from the historic centre, to the west.
Only a few historic streets, such as Zand Street retain any importance.
Urban blocks created by modern streets lack any discernible centre.
Commercial units are now located along roadsides, instead of in the heart of neighbourhoods
The city pattern lacks an efficient and adequate traffic network.
Many gardens have disappeared.

Table 5. 2 Findings from comparison of old maps of Shiraz with contemporary maps.

The rehabilitation development plan established by Shiraz Municipality, 2010, recognises two periods of politics of urban reconstruction: before and after the revolution of 1979. Based on the political, economic and social sprit of the age in each of these periods, their plans and execution have been different. The Iranian revolution of 1979 transformed the country's political, social, economic and legal structure, to conform to Islamic law, and to rebel against the changes made during the Pahlavi dynasty (1925-1979), which were based on a Western model, whereas the new Islamic regime wanted to find a distinctive Iranian pattern (Rastiemadabadi, 2015). Whilst some structures remained unchanged, it is apparent from interviews with controllers (Appendix 1) and the review of government documents, that the urban development plans of the 1980s and neighbourhood renewal policy of the 1990s (large-scale redevelopment schemes) represent a clear trend towards contemporary modernization.

The implementation of these plans and programmes exacerbated the relative decline of the historic core. The current state of decay in the core, therefore, can be attributed to the policies and regulations of this period. If the process is to be reversed, more enlightened urban policies and laws are called for.

5.2.5 Master Planning in Shiraz today

The story of master planning in Shiraz continues. The network of public spaces in central Shiraz between Isfahan entrance gate and Shah-Cheragh Shrine is the heart of Shiraz. A master plan for this area was commissioned in 1996. An underground road in the Royal District was proposed. Pedestrian movement around the Royal District was impeded by complicated pedestrian crossings. Interviews with controllers revealed that the government believed that there would be a real possibility that Bazaar and Royal District would lose their significance (Appendix 1). Unlike the traditional modifications which were slow, gradual and adaptive, modern changes have been rapid, large-scale and to a large degree destructive of Shiraz's rich heritage.

The map of Shiraz (Figure 5.13) shows that Zand Street is uninterrupted. This means that in the long term, the new streets that accommodate car access will be more important than historic streets and alleys.

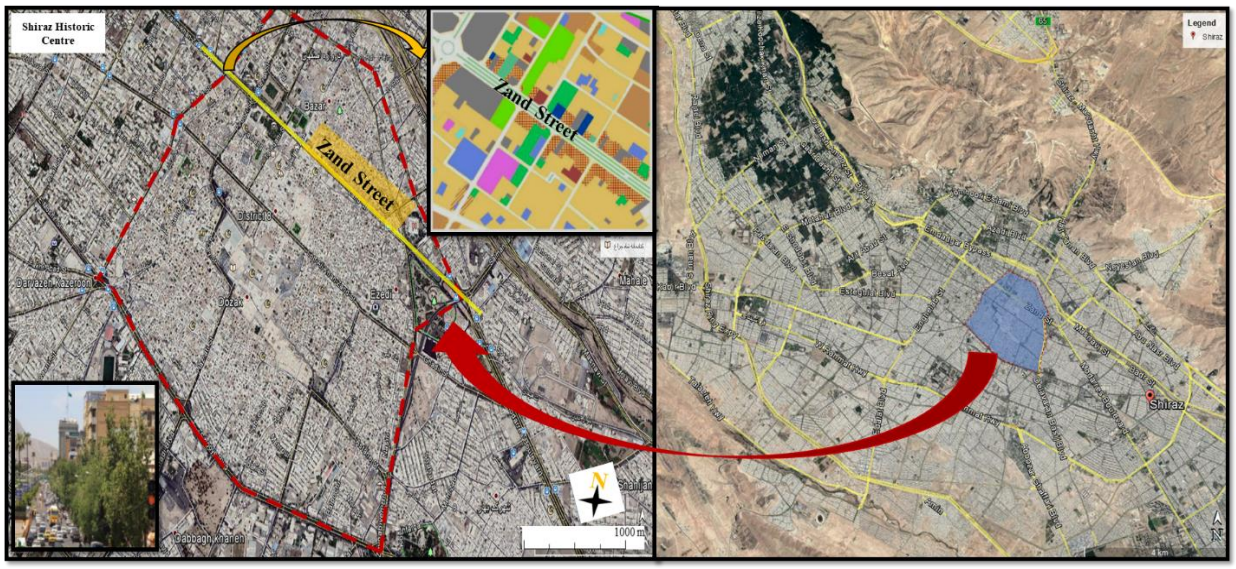

Figure 5. 13 Zand Street present location in Shiraz; (Source: Author based on Shiraz Municipality & Google map, 2014).

An interview with a representative of Shiraz Municipality (Appendix 1, questions 11 & 21), established that the planner's preoccupation with accommodating cars means that possible alternative forms of transport that could bring people to the Royal District and historic core have been ignored.

5.2.6 The projected features of the rehabilitation plan of Shiraz historic core

By using the investigation and applying technical and local data, the main directions to the rehabilitation of the historic centre are determined as follows:

1) Supplying Shiraz old bazaar by assigning parts of the adjoining space of main structures to the related services.
2) Facilitating the residential localities in historic core by creating centres of neighbourhoods.
3) Preventing the houses from being demolished, other than with the discretion of authorities.
4) Preventing construction of new streets.
5) Making public officials participate in the accurate recognition, evaluation and protection of houses spread in the old part of the city. (Shiraz Municipality report, 2014).

5.3 Different types of intervention to improve the quality of lifestyle and urban fabric in Shiraz's historical urban zones in relation to politics and religion

This section presents the interventions already made by the local government in Shiraz historic fabric based on the experiences of other countries with regard to protection, restoration and conservation of historic monuments in historic fabric. Rehabilitation is a notable lack in these intervention plans.

5.3.1 Adaptation of the historic city centre in the historical zone

According to government documents, such as the Municipality report (2015) it is evident that the first master plan in Shiraz equipped the residential neighbourhoods and emphasised the role of the city market as the traditional commercial centre without allowing more development in the city centre. The next improvement in the historical zone was carried out mainly in the historical neighbourhoods.

5.3.2 Adaptation of the historic city centre in historical urban patterns

The past experiences of the Isfahan historic core, whose rehabilitation was carried out based on European development plans, indicate that everything within the scope of Chahar-Bagh as the historical extent of the city centre has had the potential to become the centre of the city and could be its main structure. This raises the question: *what should be done in reviewing the historical zone development in Shiraz?* To continue the approved detailed plan of equipping the market area as the main structure or to prevent the clustering of commercial services in the area leading up to the market and develop somewhere else (e.g. central structure or western district) as the city centre? From interviews with controllers and producers, also according to the expert studies and comments by the council of the cultural heritage organisation, it is evident that the officials agree not to develop the market in terms of its financial value, but qualitatively by converting its use into commercial and touristic services.

5.3.3 The main road access to the historical zone

According to the government reports (1996), the first master plan in Shiraz suggested widening the roads to gain a better access to the city centre; Zand Street is the result of that (Figure 5.14).

Figure 5. 14 Widening the roads in Shiraz based on Master in present time; (Source: Author based on Shiraz Municipality).

The second master restoration plan approved a ring road around the texture as an arterial road and reduced the remaining internal roads as local accesses. Nevertheless, by constructing the Karim-khan underpass, the role of Zand Street became more important.

5.3.4 Development of a ring road around the historical zone

Investigation of government reports and interviews with controllers show that the ground over the old ditch of the city and unauthorised constructions on suggested a ring road around the historical zone. It should be noted that this task is a complex and costly one and requires difficult decisions to be made by officials and a great deal of financial support.

5.3.5 Reconstruction of residential complexes and residential units in historical zones

Analysis of the interviews with controllers and of municipality reports shows that building renewal and alternative plans have been suggested. The question is whether the renewal plan should be carried out using modern methods (whereby 60% of the space comprises gardens, while 40% comprises buildings) or whether other methods could be used too. Development of the north-western and south-eastern areas were planned in a modern gridiron style in the Shiraz master plan. From examination of the maps and typology of housing in Shiraz historic fabric, it is obvious that this modern development pattern is not compatible with traditional construction methods in the historic urban area (Figure 5.15 and 5.16).

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Figure 5. 15 Typology of traditional houses (top) and synthesis of modern layout patterns in Shiraz historic fabric (bottom); (Source: Author based on Shiraz Municipality).

Because houses have limited protection and are without regulations (such as those from UNESCO), they undergo intentional demolition, change of function, inappropriate segregation or irregular integrations. Hence, Shiraz is a good example of such a phenomenon.

Figure 5. 16 Residential historic buildings in Shiraz's historic fabric.

It is widely accepted that policy components such as governmental policies, planning system and traditional economic formations will affect land use, land price and natural resources. These components are important in order to identify the answer to the supplementary question: *"How can low income residents be retained in the face of changing land uses and land values?"*

In order to answer this question, and according to the integrated conceptual framework, one of the aspects of livelihood theory points to the participation of residents in the decision-making system for improving the economic and socio-cultural wellbeing which affects the formation of the historic zones by changing the land use from one use to another. In this regard, it is necessary to examine the public and non-governmental participation in Shiraz historic fabric in relation to rehabilitation.

5.3.6 Public and non-governmental participation to improve the urban textures

According to government reports, the experience of improvement in historic textures in Iran shows no great promise. Due to the historic role expected of the government (as a powerful organization which manages and organizes the city by oil revenues), public participation in this field is less established. Hence, because the improvement plans are so deeply and widely involved in public interests and possession in particular, the need for public participation is strongly felt.

As a result, following the achievement of public participation in historical zone improvement, it is necessary to assure its fulfilment and to create social capital and realize the concept of citizenship. The researcher identified from Shiraz Municipality report (2015) that the following activities were carried out for rehabilitation purposes in Shiraz: demolition, clearance, and rebuilding. Some other procedures may be carried out simultaneously or continuously such as:

- **Remodelling:** The use of former morphological patterns in the creation of new areas, either with or without consultation of new areas.
- **Reintegration:** The integration of historical buildings into newly-developed areas.
- **Restatement:** restates the old concepts in new forms so that they are brought up-to-date and are active in the current life of the city.
- **Regeneration:** becoming new and up-to-date, updating the area by preserving the main old spatial and functional characteristics, but having apparent similarities and different identities. However, it should be noted that no clear boundary has been defined between the kinds of the procedures suggested in historical textures.

Many of these methods overlap which makes it difficult distinguishing them from each other. The methods shown above were identified from interviews (Appendix 1) and literature review (Shiraz Historic Core Master plan, 2015) and will be used in determining the main intervention strategies in Shiraz's historical fabric.

5.3.7 Summary of Development plans in Shiraz

Since the late 1960s, different proposals for improving and rehabilitating Shiraz's historical texture have been raised practically. Some of them lacked appropriate space for implementation due to reasons like the lack of co-ordination between stakeholders and lack of consistent implementation. In other words, reasons for non-accomplishment of these plans can be considered as follows:

1. Plans dependent on rigid proposals, regulations and laws, without considering infrastructure and physical, economic and social changes.
2. Lack of management, of efficient organization and ability, to understand and communicate and execute large-scale offers and which require a budget, validities and administrative and technical know-how.

Therefore, considering the non-implementation of many plans, such as a ring road around the historic fabric, internal gates, historical passages, this research has attempted to attain its goals to accomplish the following:

A. Reconsidering and redesigning some of the more practical plans previously suggested, with an effort to improve coordination between different organizations to promote physical life and social status.

B. Using SWOB analysis, this research will identify strengths, weaknesses, opportunities and threats to propose a set of strategies and actions that will help the rehabilitation of the historic fabric in Shiraz, which could be applied to other cities in Iran.

5.4 The role of economy in shaping urban form

Chapter 3, section 3.6 identified that the formation of Islamic historic cores is based on the role of the bazaar and its components, land use, public and state property and Islamic economics. Therefore, this section will identify the role of the bazaar in shaping the urban form in Shiraz historic core, to identify how this research can use these findings to propose a rehabilitation strategy.

Chapter 2 stated that Iranian bazaars were the centre of virtually all economic activities. They linked the rural areas with local and regional urban consumer markets and integrated the provincial cities into the modern industrial sectors. A bazaar also bridges the middle and lower classes of Iranian society and is therefore considered one of the most significant socio-spatial systems in Iranian cities.

The structure of Iranian traditional cities reveals that a bazaar, which usually takes a linear shape, acts as the spinal column of the city and continues toward the main gates of the town. It is thus located in the main core of Islamic cities and Shiraz is no exception. For economic and commercial activities in Iranian cities, the bazaar is the most important public space. Therefore, in Shiraz's historic core, the bazaar plays the role of a commercial, political and public space.

To better understand the transformation of the bazaar in different periods and its effect on urban elements within the historic fabric, Figure 5.17 presents the concepts of the bazaar in the pre-Islamic and Islamic eras, helping the reader to understand how the bazaar relates to the historic urban context and to rehabilitation of economic functions. In each period, the bazaar occupies a central position along a major route-way into and out of the city.

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Figure 5. 17 Influence of Bazaars on formation of Iranian historic cities from pre-Islamic era to Islamic era; (Source: Pourjafar, Amini, Varzaneh and Mahdavinejad, 2014).

A bazaar is organic in formation and flexible in terms of space and functionality. Shiraz's bazaar is indirectly connected to the city gates through the main thoroughfares. Residential neighbourhoods are located in the spaces between the gates of the city and the bazaars. The secondary branches of the bazaar expanded along the main "Rasteh" (lanes of the bazaar with shops of particular professions) and reach the gates of the city,

connecting sacred spaces to living spaces as shown in Figure 5.18 which shows the bazaar running along roads directly branching off the main thoroughfare and its surroundings which consist of many public and governmental buildings.

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Figure 5. 18 Shows how the bazaar connects other urban spaces; (Source: Assari, Mahesh, Emtehani and Assari, 2012; Lak and Hakimian, 2018).

Like other cities, Shiraz is a living city, which is constantly changing. Therefore, implementing development plans that would provide a sense of unity and integration in relation to the city is necessary. Traditional Iranian architecture is full of samples evolved during Iranian history that can serve as architectural paragons for the city. In Shiraz's traditional city, a sense of unity exists in various urban areas due to the shared spaces of the mosque and the bazaar and the common religion of the people, namely Shia Islam. This research focuses on the concept of “historic cities” to determine the role of bazaars in such cities. The results show that bazaars are crucial in giving a sense of integrity to the concept of a traditional Iranian city.

Thus, the traditional bazaar in Shiraz plays two important roles in its historical context: (A) interconnecting the different parts of the city's physical structure, and (B) it has a crucial role in bringing unity among the residents in Shiraz's historic fabric (Figures 5.19, 5.20, 5.21 and 5.22). (C) it is a place for local, national and international trade, where both international businesses and local traders can produce and sell goods in one place.

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Figure 5. 19 Bazaars as unifying urban elements; (Source: Pourjafar, Amini, Varzaneh and Mahdavinejad, 2014).

Figure 5. 20 Bazaars in terms of activities and design; (Source: www.alamy.com, 17 April 2016).

5.4.1 Economic indicators in the historic core

From analysis of interviews with key stakeholders (Appendix 1), it can be identified that the following have existed in relation to Shiraz's bazaar.

1) The need for improved navigation around the streets surrounding shops and commercial premises.

2) The existence of spatial conflicts around the bazaar between the traders working in the streets and the need for more housing due to increasing numbers of residents.

3) Shiraz's bazaar as an equipped urban axis, based on the requirements in economic developments in previous centuries has had a gradual and continuous growth. Moreover, it has a valuable and stable function by concentrating on specific activities within different parts of its structure.

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Figure 5. 21 Model of modernized Islamic cities; (Source: Assari, Mahesh, Emtehani and Assari, 2012).

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Figure 5. 22 Shiraz bazaar as unifying urban elements; (Source: Madanipour, 2003).

Hence, the relationship between the bazaar and its various aspects and the other main elements (such as the saray, a branch of the bazaar) of Shiraz's historic core are shown in Figure 5.23 below.

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Figure 5. 23 Bazaars and connections to urban elements; (Source: Pourjafar, Amini, Varzaneh and Mahdavinejad, 2014).

One important economic factor in relation to the development of urban areas is the unemployment rate, which can affect the process of rehabilitation, due to the lack of available income for expenditure in local businesses, which in turn, provides both residents and business owners with less capital with which to repair dilapidated buildings and homes. According to the analysis of the statistical reports and questionnaires (Appendix 3), 40% of population living in the historic core of Shiraz have businesses and economic activities, such as shops, and 60% of the population have a problem finding a job or running a business. GIS analysis shows that the main cause of this problem is gender inequality, which gives men the opportunity to do a wide variety of jobs and a much narrower choice for women. Although the economic downturn means it is very difficult to find a job in this area, many immigrants prefer to come to the historic district and settle near the Bazaar because of cheap housing and small business activities. Figure 5.24 shows the unemployment rate in Shiraz's historic fabric. Overall, this is 13% in the historic district, compared to 11% in the city as a whole. It also shows the maximum and minimum rates for the historic district, showing that the maximum rates of unemployment are in the east of the city.

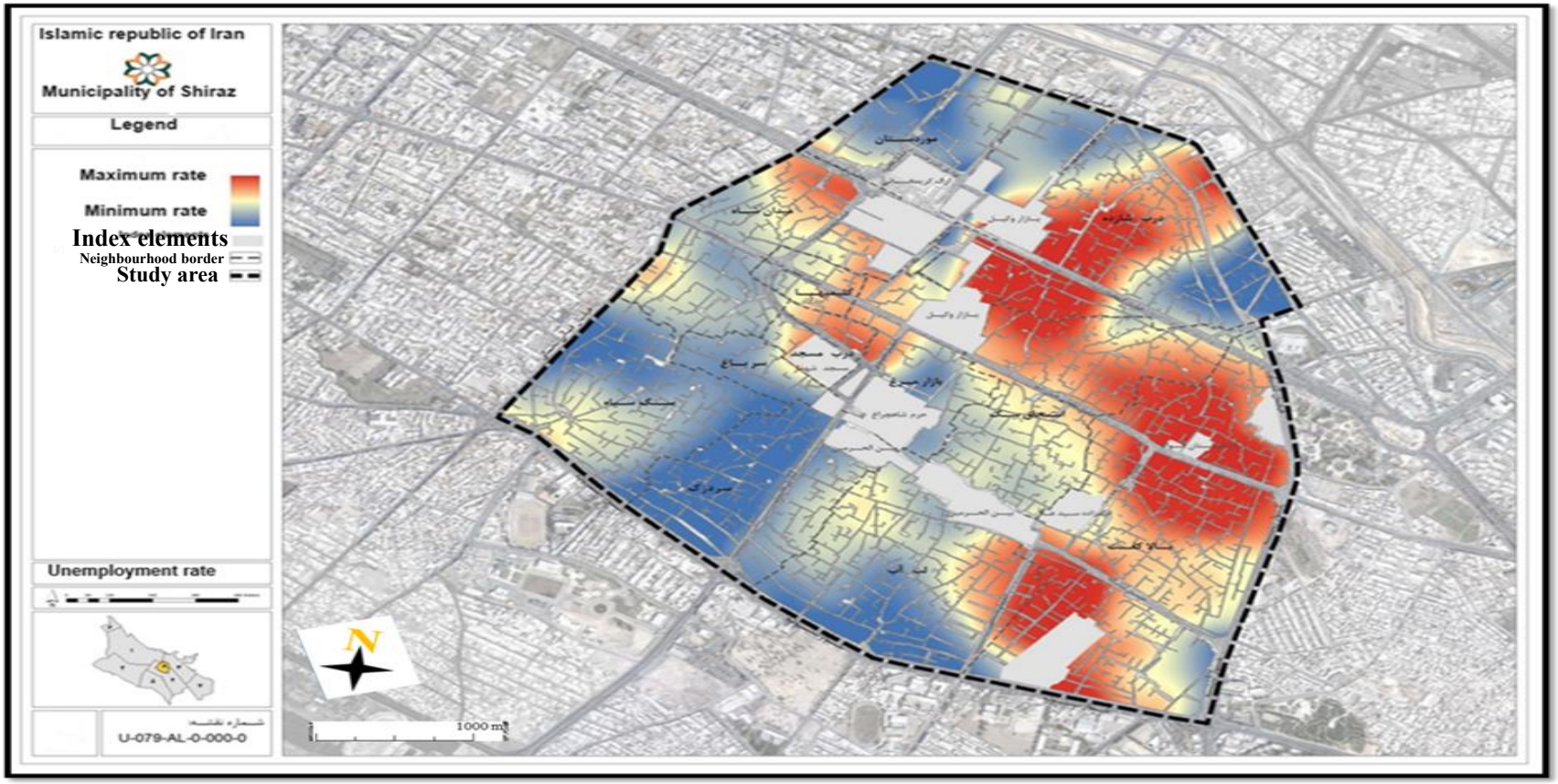

Figure 5. 24 Unemployment rate in Shiraz's historic fabric; (Source: map generated by the author, using Shiraz Municipality GIS system and census data).

Information regarding livelihood was collected from the households based on census data provided by Shiraz Municipality and the map produced by the author in order to give a better view of the economic and social conditions of residents. Analysis of this information by GIS shows that the salaries of residents are 6.3% lower than those of other people living outside the historic zone (1,600,000 Iranian Toman outside the historic core compared to 1,499,200 Iranian Toman within the historic core). (Due to economic instability in Iran, the exchange rate fluctuates greatly and therefore, it is not possible to give an equivalent in pounds sterling).

Figure 5.25 shows the result of analysis of household income in the historic core, by GIS techniques, where red denotes the areas with the lowest income, while households with higher incomes are denoted by green and are mainly concentrated around the edge of the historic core.

Figure 5. 25 Household livelihood in Shiraz's historic fabric; (Source: map generated by the author, using Shiraz Municipality GIS system and census data).

However, the quality of living conditions is not affected by the income of the residents, as the municipality invests in improvement of roads and urban infrastructure. Figure 5.26 shows the quality of living conditions in the historic fabric. The north of the historic fabric has the highest quality of living conditions, compared to the rest of the historic zone, while the south-east and north-west zones have the lowest quality of living conditions.

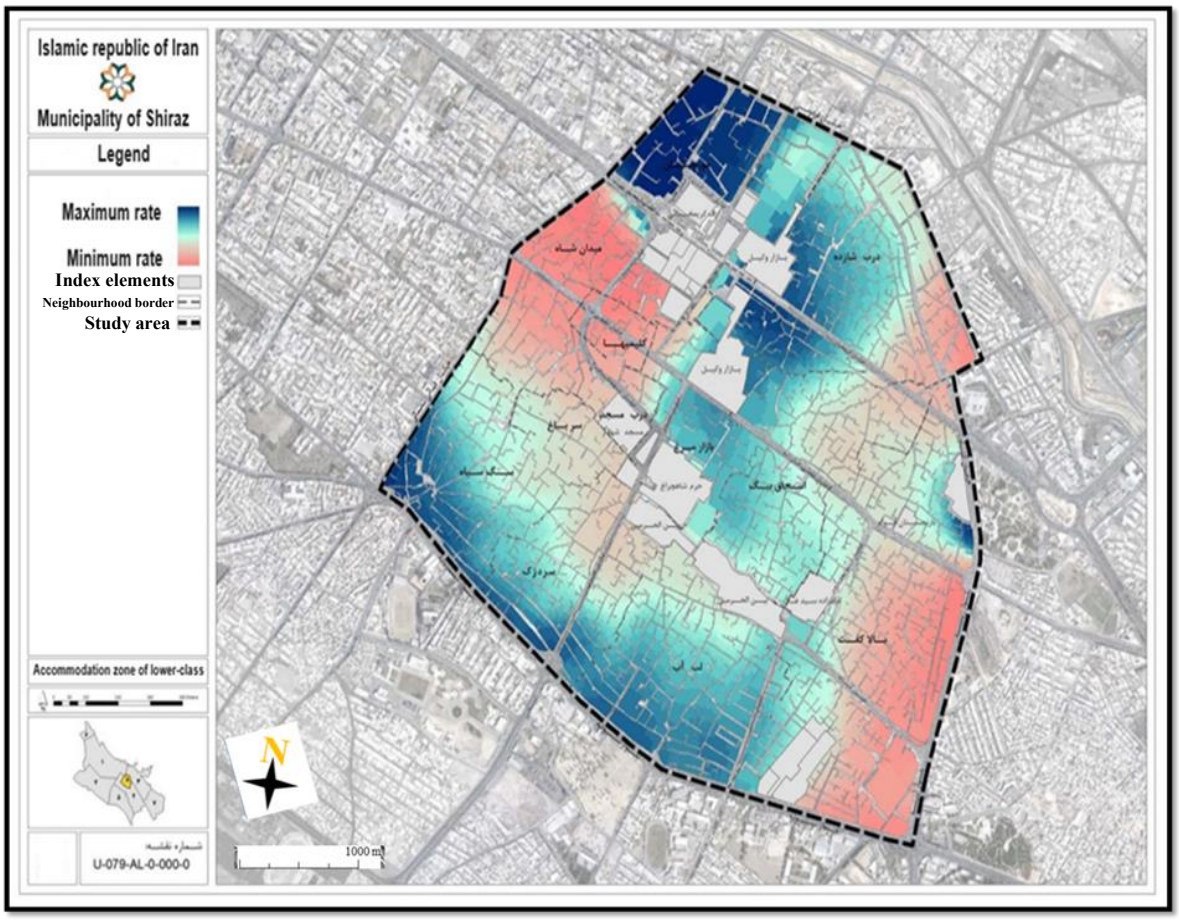

Figure 5. 26 Quality of living conditions in Shiraz's historic fabric; (Source: map generated by the author, using Shiraz Municipality GIS system and census data).

Analysis of interviews (Appendix 1) with Governmental bodies and census data provided by Shiraz Municipality reveal that another important factor in improving the condition of urban areas in the historic fabric is residents' ownership. Therefore, the questionnaires were designed to collect data on this subject and were analysed by SPSS (Appendix 3) In addition, the research conducted by the public sector and private firms (Appendix 5) shows a high percentage of tenants compared to owners: the proportion of tenants in the historic district of 48% while that of owners is equal to 46%. Figure 5.27 shows the rate of tenancy in the historic fabric of Shiraz.

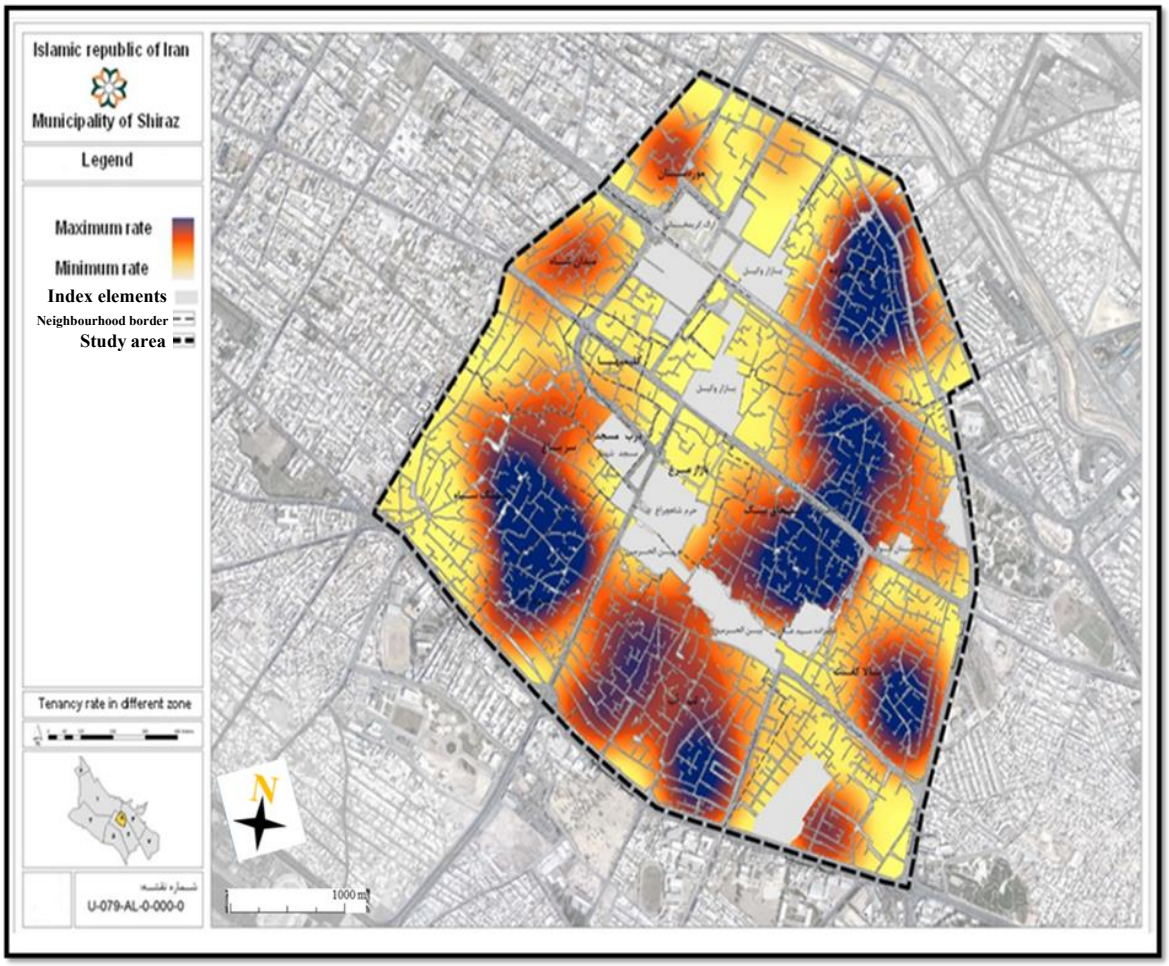

Figure 5. 27 Tenancy rate in Shiraz's historic fabric; (Source: map generated by the author, using Shiraz Municipality GIS system and census data).

Interviews with the public sector and governmental reports (Appendix 1) identified that the cost of land and houses has an important effect on the livelihood of residents and, consequently, on the process of rehabilitation of urban areas. Reports published by the Municipality of Shiraz show residential property prices in the historic area are lower than average compared to other parts of the city. Hence, this area can be considered one of the most undervalued urban areas in terms of property values. Figure 5.28 shows the price of land and houses, while Figure 5.29 shows the cost of accommodation in the historical context of Shiraz based on information collected in fieldwork.

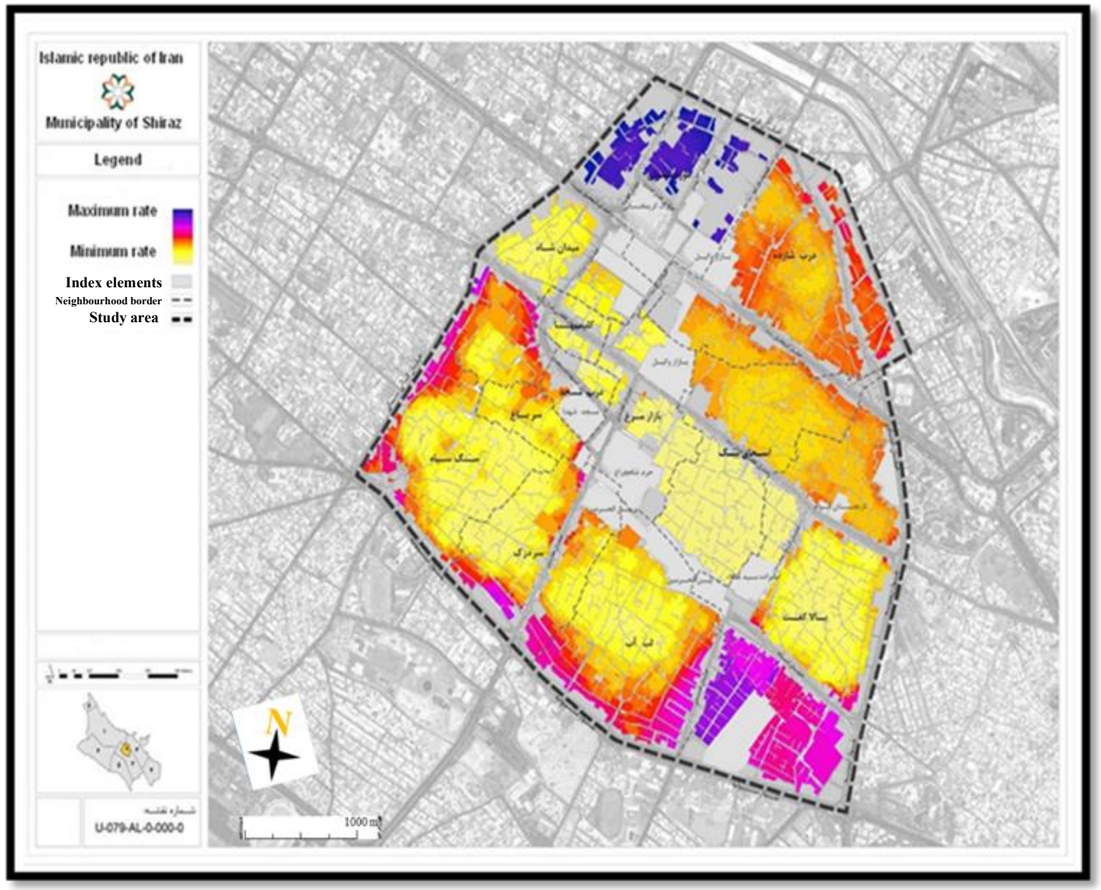

Figure 5. 28 Accommodation rent rate in Shiraz's historic fabric; (Source: map generated by the author, using Shiraz Municipality GIS system and census data).

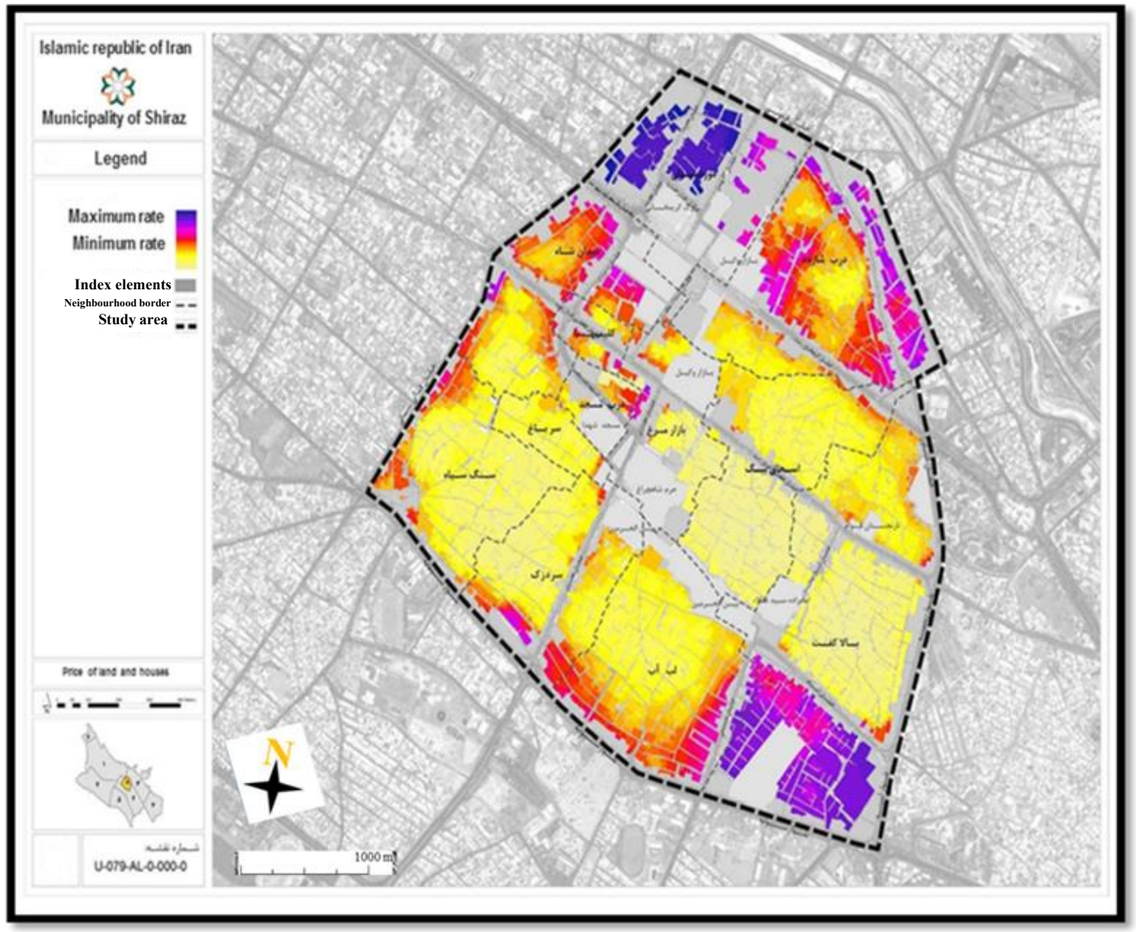

Figure 5. 29 Price of land and houses in Shiraz's historic fabric; (Source: map generated by the author, using Shiraz Municipality GIS system and census data).

5.4.2 Conclusion of effect of economy on urban form in Shiraz

To answer the research question, *"How does economics affect the urban form at macro level?"*, this section examined the role of the bazaar and its components on the historic core. The bazaar, as identified in Chapter 2 and 3, played a crucial role in the shaping of Iranian Islamic cities. In Shiraz, the bazaar as the centre of economic activity shaped the historic fabric alongside religion and politics. Therefore, maps and socio-demographic analysis show these components built around the bazaar shaped the historic fabric of Shiraz: the citadel, public baths, schools, courts, Grand Mosque, streets, squares, caravanserai, tannery, residential areas, city walls and gates. Security of the historic fabric in Shiraz is established by means of the connection between the bazaar, as an economic centre, and city walls and gates by winding streets. The bazaar by connecting itself to schools and mosques played the role of training people in skilled labour. The connection between the bazaar and local shops in residential areas, also improves the trade of the local shops in response to the needs of the residents.

These findings will enable the researcher to produce the recommendations for the rehabilitation of the historic core of Shiraz at the final stage of this research. Also, the integrated conceptual framework identified that socio-cultural factors play the crucial role in rehabilitation of historic cities. Therefore, the following section of this chapter focuses in the following research question:

> *How can a rehabilitation approach improve both the socio-cultural environment and physical form at macro and micro level?*

In order to answer this question, the chapter will give a background to socio-cultural issues and socio-cultural analysis. It will then give a brief historical context of the urban form, before analysing the present urban form.

5.5 Socio-cultural issues affecting the urban form

It was identified in Chapter 3, section 3.7, that socio-cultural factors affect urban form since people's use and experience of the city is shaped by the components of the city, such as the mosque and bazaar, and in turn, people's use of these components affects the formation of the city. This is important for rehabilitation because it relates to the identity of the residents and the place. This also shows the importance of understanding the role of the socio-demographical pattern in Shiraz historic core and using the findings for rehabilitation of Shiraz historic fabric in regard to socio-cultural activities, organisations and monuments. Therefore, this section will identify the role of the residents in shaping the urban form in Shiraz historic core and their participation in the process of urban development, improvement of quality of urban areas and participation in decision-making for development plan, to identify how this research can use these findings to propose a rehabilitation strategy.

For this research, socio-cultural issues analysed include, immigration, education and literacy and social integration and participation. The analysis that follows draws upon both qualitative and quantitative data (Appendix 3). In the conceptual framework outlined in Chapter 3 it was argued that it was important to understand the linkages between the physical environment and political and religious considerations.

Whilst the physical environment plays a pivotal role in the rehabilitation of historic cities, lifestyles, beliefs along with local culture play a vital role in determining the general quality of life for residents.

"Manifestations of culture include all institution, arts, traditions, literature, beliefs, and the lifestyles of people that have similarities in behaviour, ideology, economy, religion and technology" (Falamaki, 2005). To investigate the socio-cultural dimensions, livelihood and urban design theory were deployed. In the context of this research is the art and technical design processes that result in improvements in the urban environment to deliver both physical, civic and socio-cultural benefits for the communities dwelling within cities, based on information gathered by Shiraz Municipality and analysed by author. This investigation, therefore, needed to draw upon substantial secondary sources including public census data, public records of projects and detailed plans that have impacted the historic core. Public census data available from the statistical centre of Iran was accessed over the census periods 2011 and 2016.

According to the 1996 public and housing census the population of Shiraz was 1,053,025 residents. The 2016 census revealed a population of 1,565,572: an increase of 32%. This rate of growth outpaced that of the country which saw its population increase from 56.23 million to 80.28 million, an increase of 30%. This substantial increase is accounted for in large part by migration from Afghanistan and villages around Shiraz city. Government documents show that more migrants flowed into the outer city than the central core. The records also show that during the 20 years between 1986 and 2006, there was a major migration of local inhabitants out of the core to be replaced by immigrants. Figure 5.30 shows the neighbourhoods most affected.

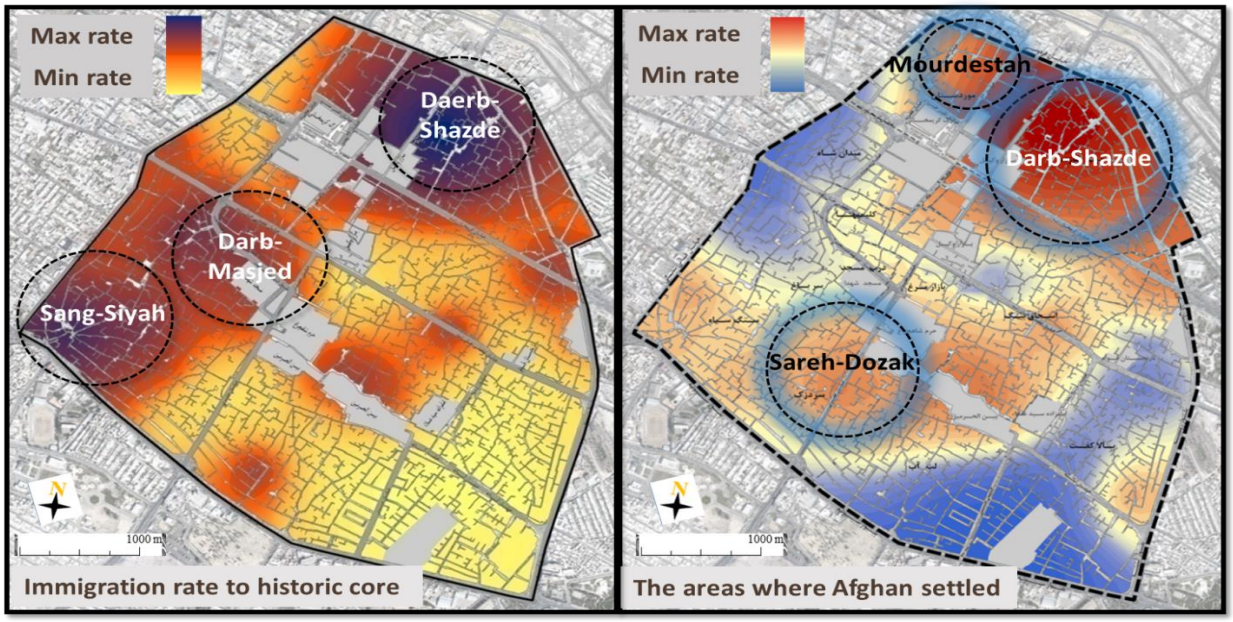

Figure 5. 30 The density of migrants into Shiraz's historic fabric, (Source: map generated by the author, using Shiraz Municipality GIS system and census data).

Between 1996 and 2007 a government survey sought to establish the changing pattern of immigrant and indigenous populations and to compare it with the previous decade (1986-1996). It established that the migration rate had increased from 14.8% to 18.5%. The pattern is shown in Figure 5.31.

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Figure 5. 31 Migrants entering Shiraz historic fabric, years 1996- 2007; (Source: Statistical Centre of Iran, Public Census of People and Housing).

Statistics from the Iranian statistical centre (https://www.amar.org.ir, 2011) reveal that most migrants settling in the historic core are Afghans, circa 77% of whom have resided there for less than 10 years. Indeed 63% have moved to the locality within the last five years. Virtually all are tenants. Nearly 60% were attracted to the area by lower rental values. Only 18% dwell close to their place of work and 4% chose to move to the area to join a family network. 72% of Afghans either do not have any relationships with local people or if they do it is at a very low level and their involvement in community affairs is either negligible or non-existent. The influx of migrants has put pressure on the indigenous population many of whom have left the historic core. This is a source of concern for controllers and producers as the transitions cause a loss of sense of place-identity, and residents feeling less connected to the neighbourhoods, and therefore take less care in maintenance of the historic core (Appendix 2, Part 2, Question 10.1, and Appendix 1, Part 2, Questions 10, 11). Figure 5.30 shows the neighbourhoods that have absorbed the highest proportion of migrants.

To put these concentrations into perspective, it is necessary to establish where the highest concentrations of domestic dwellings are located. This is revealed in the map below Figure 5.32.

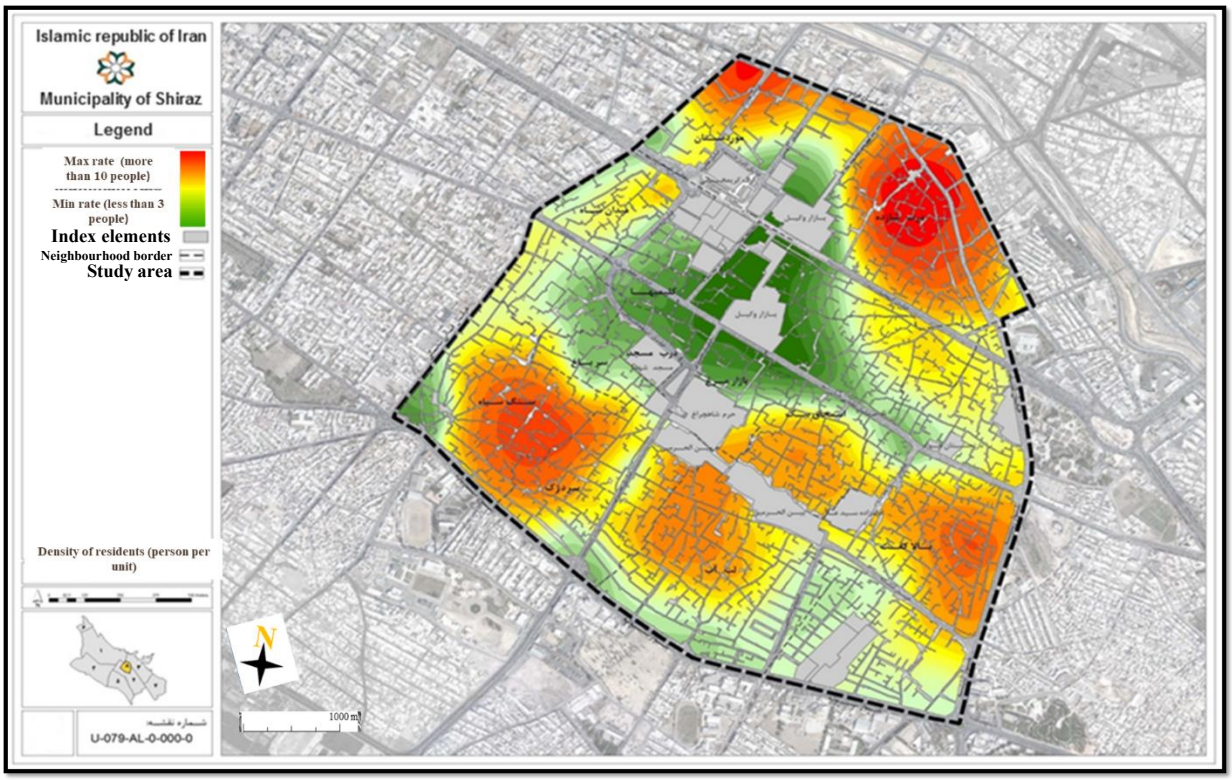

Figure 5. 32 Density of residential units in the historic fabric of Shiraz; (Source: map generated by the author, using Shiraz Municipality GIS system and census data).

The immigrant concentrations, especially in the north and north-east, correspond with the areas of greatest dwelling concentrations. Findings derived from a survey of sample families in the historic centre, show that the groups with the lowest number of people per family was related to Turks (3.3 persons) and the groups with the highest number of people per family belonged to Afghans (6.53 persons). Therefore, the average Afghan family size is greater than that of other ethnic groups living in the historic core.

5.5.1 Fluctuations in Literacy rates during the years (1996-2007)

The National Statistic report (2005) and Municipality report (2015) identified that literacy rates and educational levels are important parameters for the development of a region or a city. Literacy is closely related to the levels of awareness concerning public information. Information about literacy rates therefore helps in finding better approaches to promoting community participation in the rehabilitation of historic areas. The dramatic reduction in literacy rates in the historic core was a result of the emigration of local residents and their replacement by immigrants with lower levels of educational attainment. It follows, therefore, that the educational infrastructure needs significant enhancement if greater community engagement is to be secured. This analysis shows that to improve the education level, the educational infrastructures need to be developed within the historic core.

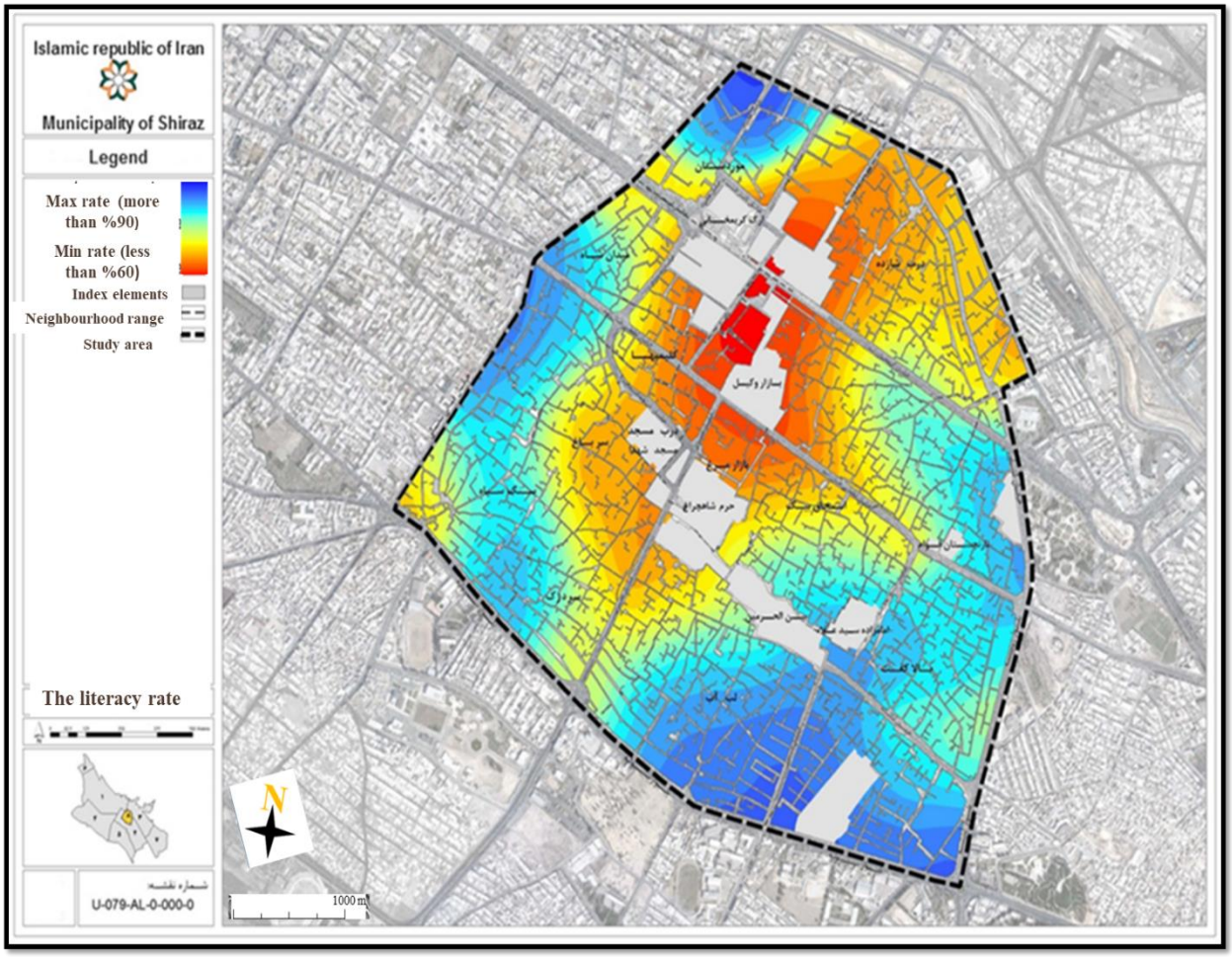

Figure 5. 33 Literacy rates within the historic core; (Source: map generated by the author, using Shiraz Municipality GIS system and census data).

Figure 5.33 shows that literacy rates in the centre of the historic core are less than 60% and in much of the historic core, they are less than 90%. These insights are important because they highlight the extent to which multi-cultural perspectives need to be considered when seeking to create a sense of identity that will contribute to improvements in the socio-economic standing of the historic core. This information comes from Shiraz municipality database collected 2005-2015 and the GIS maps were produced by the author based on the 2015 upgraded database.

To facilitate planning for the future, it is important to understand the residents' motives for choosing to live in the historic core and why some residents choose to migrate elsewhere. This requires insight into the nature of the relationship between different ethnic groups and the extent to which these different groups engage with the wider community.

5.5.2 Rationales for choosing the historic core as the place of residence

In order to gain an overall picture of socio-cultural, economic and political issues, and in order to develop a questionnaire with pertinent questions, a pilot survey of residents within the historic core was taken in 2011. The pilot survey asked residents to specify the two most important reasons for choosing the locality in which they reside (Appendix 4, Question 2).

Table 5.3 presents the results. Affordability emerged as the most important consideration. This characteristic is also associated with reductions in morphological and residential value along with declining social cohesion. Inheritance was found to be the second highest factor and suggests inertia rather than choice.

Reason for selection of locality	First preference	Second preference
Proximity to workplace	17.2	11.9
Locality social position	0.6	1.1
Housing suitable price	45.6	28.4
Ease of traffic access	6.3	19.2
Nearness to relatives	4.9	17.2
Inheritance	20.6	6.9
Others	4.9	15.3
Total	**100**	**100**

Table 5. 3 The reasons for selection of place of residence in the historic core; (Source: generated by the author, using Shiraz Municipality census data).

These findings showed that the greatest inclination to leave the historic core existed in the inhabitants who have resided in the area for the longest. The pilot survey results indicated that 54% of residents with a residence period of 30 years or more were more inclined to relocate, as Table 5.4 reveals.

Inclination to change living place	Residence period	Net frequency percentage
Low	26.91	36.40%
Average	13.84	8.90%
High	30.84	54.80%

Table 5. 4 The reasons for selection of place for residence in the historic texture and its relation to period of residence; (Source: generated by the author, using Shiraz Municipality census data).

5.5.3 Social cohesion

Chapter 3 highlighted the importance of social capital in promoting community participation. The pilot study (Appendix 4, question 3): posed the question 'How good a relationship do you have with your neighbours?' Respondents were residents of the historic core and were given the questionnaires by the community leaders, who were in contact with the researcher. Sadly, 75% of residents considered their relationship to be either poor or very poor. In contrast, only 10.3% of residents considered their relationships to be good or very good. This result correlated with the findings of a second question which was, '*How much do you participate in public activities (religious ceremonies and feasts and involvement in local affairs etc.) in your locality?'* The results showed that participation rates were as low as 10%.

Comparisons of neighbourhood relations in the southern areas of Bala-kaft and Lab-Abb (Figure 5.33) revealed better neighbourhood relations. These are districts with higher ethnic diversity. Comparisons of Figures 5.34 and 5.35 show that there is a degree of correlation between neighbourhoods with higher literacy rates and higher levels of interaction between neighbours, particularly in the southern and western edges of the historic core, such as Bala-kaft and Lab-E-Abb neighbourhoods. As these are more ethnically diverse, this suggests that heterogeneity causes fewer problems where literacy and education levels are higher. Literacy is cited as an important factor in rehabilitation in section 3.7 of this research.

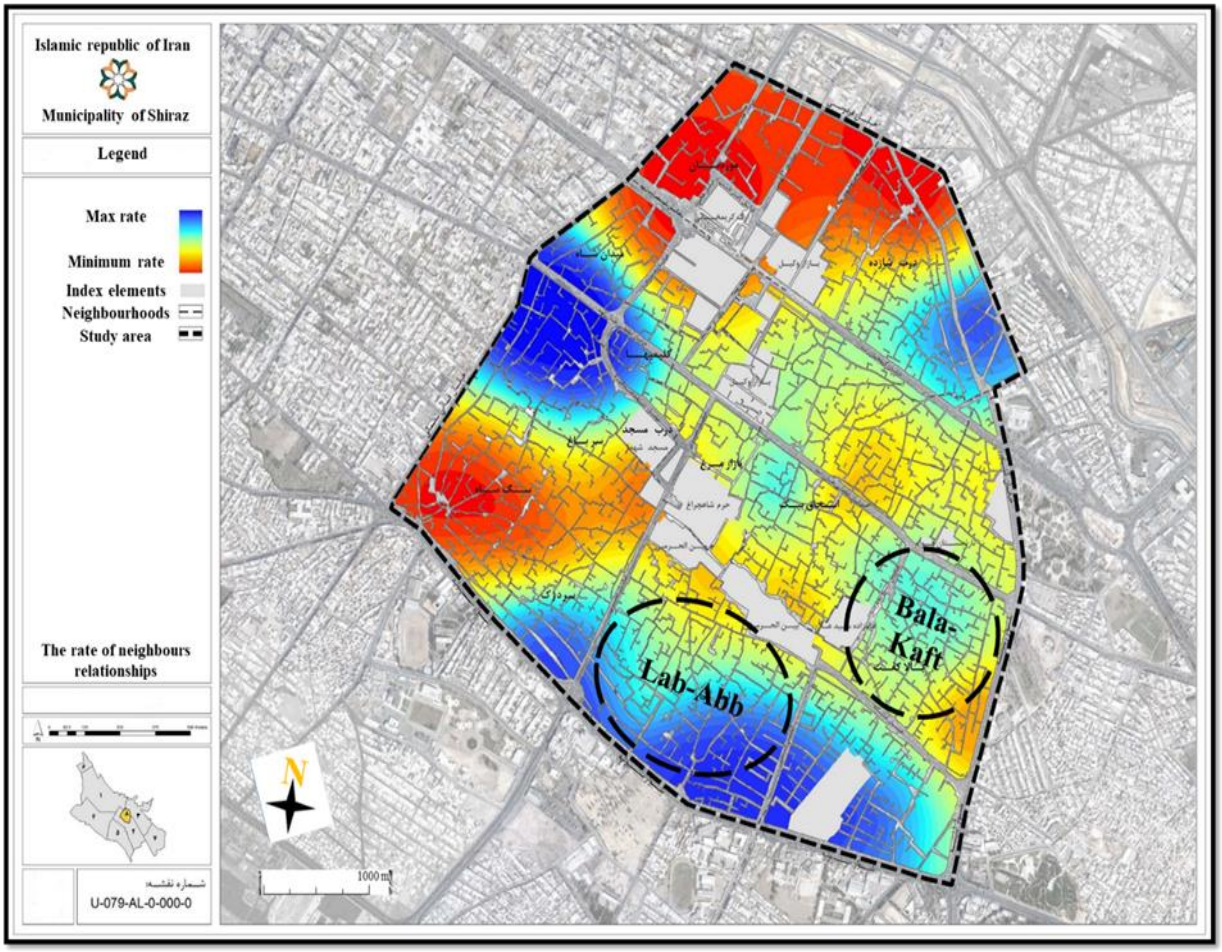

Figure 5. 34 The proportion of relationships with neighbours among inhabitants in Shiraz's historic fabric; (Source: map generated by the author, using Shiraz Municipality GIS system and census data).

5.5.4 Patterns of home ownership

Statistics derived from Statistical Centre of Iran, and the pilot survey revealed that more inhabitants live in rented housing (47%) in the historic core as compared with Shiraz city as a whole (25%). However, 39% of inhabitants in the core are homeowners and make up just over half of all homeowners in Shiraz city (64%). This points to a large rental sector, combined with a high proportion of dwellings that have been inherited. Another factor is the presence of squatters. These inhabitants are undoubtedly vulnerable and are subject to poor living conditions.

Home ownership in district No 8 is compared with Shiraz city in Table 5.5.

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Table 5. 5 The status of home ownership in District no 8 and Shiraz city as a whole (Source: Statistical Centre of Iran: findings of family (20%) sampling; Calculations of Pardaraz Consultants).

The low concentration of home ownership is also associated with a willingness on the part of inhabitants to engage in construction and restoration. The pilot survey (Appendix 4) found that tenants have little interest in either and established inhabitants are unlikely to invest in the fabric of the area if their aspiration is to migrate elsewhere. Figure 5.35 distinguishes those areas in which inhabitants are interested in restoration and those areas where inhabitants are indifferent or disinterested.

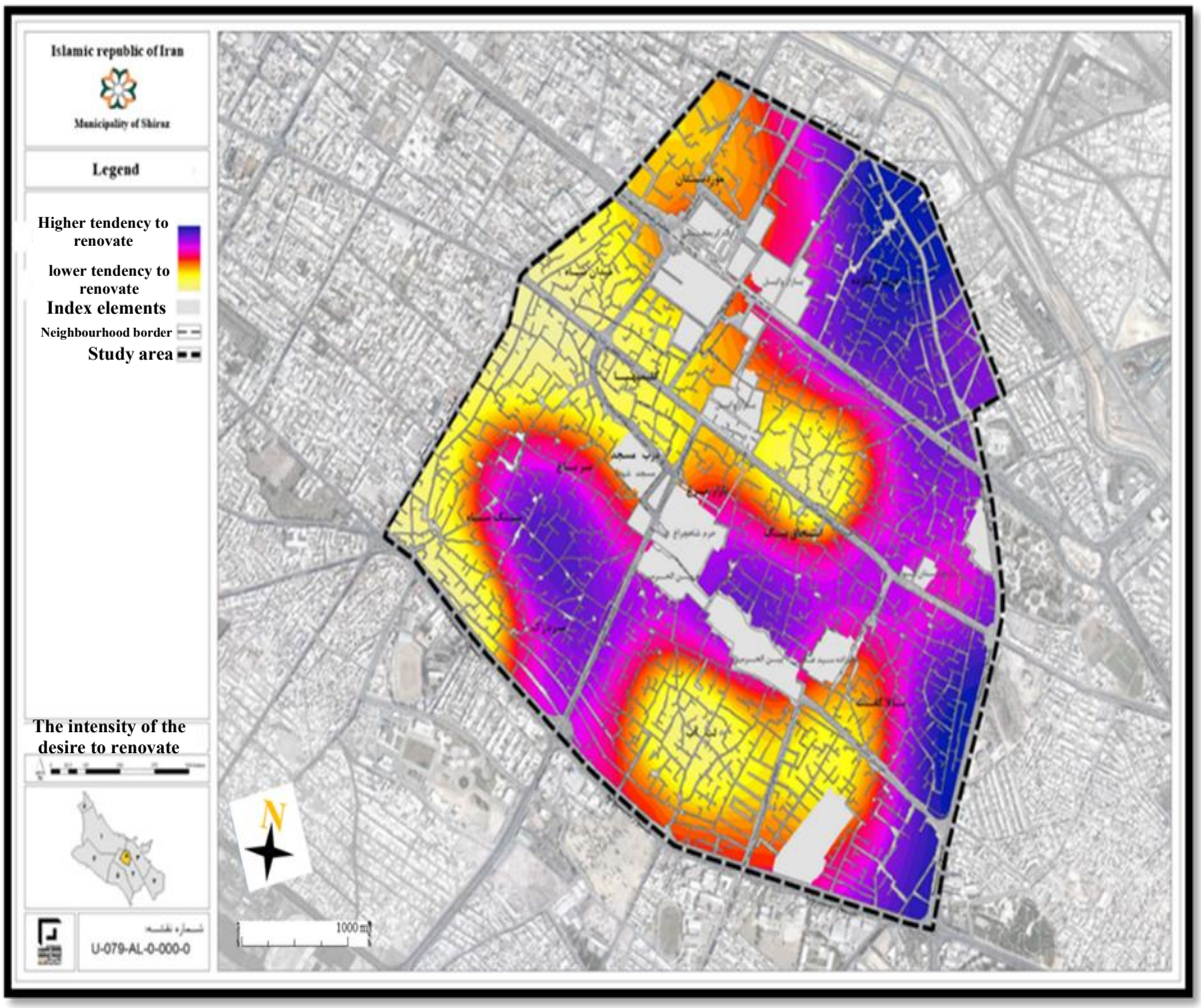

Figure 5. 35 The profile of tendency to restoration in Shiraz historic fabric; (Source: map generated by the author, using Shiraz Municipality GIS system and census data).

In general, localities that are rich in historic and cultural heritage can become blighted with social tensions. Normal patterns of social control associated with community and common interest give way to drug abuse, theft and coercion. This reduces property values and attracts societies more disadvantaged. Unemployment rises, further reducing levels of prosperity. Established residents with a long history of dwelling in the locality notice the pattern of deterioration and look to leave the area. Rental values and house prices fall further. Thus, a vicious downward spiral is entrained. When established communities become fractionated, disinterest in cultural and structural artefacts grows. It is important, therefore, for researchers and planners to develop a deep understanding of the patterns of socio-economic stratification and understand the patterns of transition that characterise a historic core.

Social stratification is universally recognised as a central feature of advanced capitalist society. This pattern of stratification is illustrated in Figure 5.36.

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Figure 5. 36 Social classes in capitalist communities; (Source: Journal of City & House; 2007: 66).

The upper layers of the social pyramid include industrial and commercial interests that include financiers, investors, great landowners and owners of estates. The middle-class strata consist of high-ranking technocrats, professionals with diverse specialties and professional agents. Within the strata there are employees and technicians from various occupational groups, along with skilled and semi-skilled workers as well as unskilled labourers and beneath them, the unemployed and the indigent.

Although class-related isolation is not as evident since the Islamic revolution, areas of Shiraz are often thought of as working-class or areas where educated and wealthy people live as shown in Figure 5.37. It also produces several criteria to distinguish classes and facilitates recognition of social groups and, to some extent their mobility. Segregation of the given classes in the above diagrams indicates that classes are static in their social structure. At the same time, it gives consideration to the fact that these classes were created during the pre-Islamic period (Habibi, 2008).

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Figure 5. 37 Settlement patterns of social classes in different eras in Iran (Source: Author based on Habibi, 2008).

The criteria, which are employed for recognition of social classes, include three important parameters: major occupational groups, level of family income, and level of education. The information about these parameters collected is based on the questionnaire (Appendix 3).

The historic monuments in Shiraz that have social functions and relate to social hierarchies can be classified as follows:

- Religious activity
- Touristic activity
- Socio-economic activity
- Residential accommodation
- Public services
- Hotels and guest houses
- Neighbourhood centres
- Cultural centres

These monuments' locations are shown in Figure 5.38.

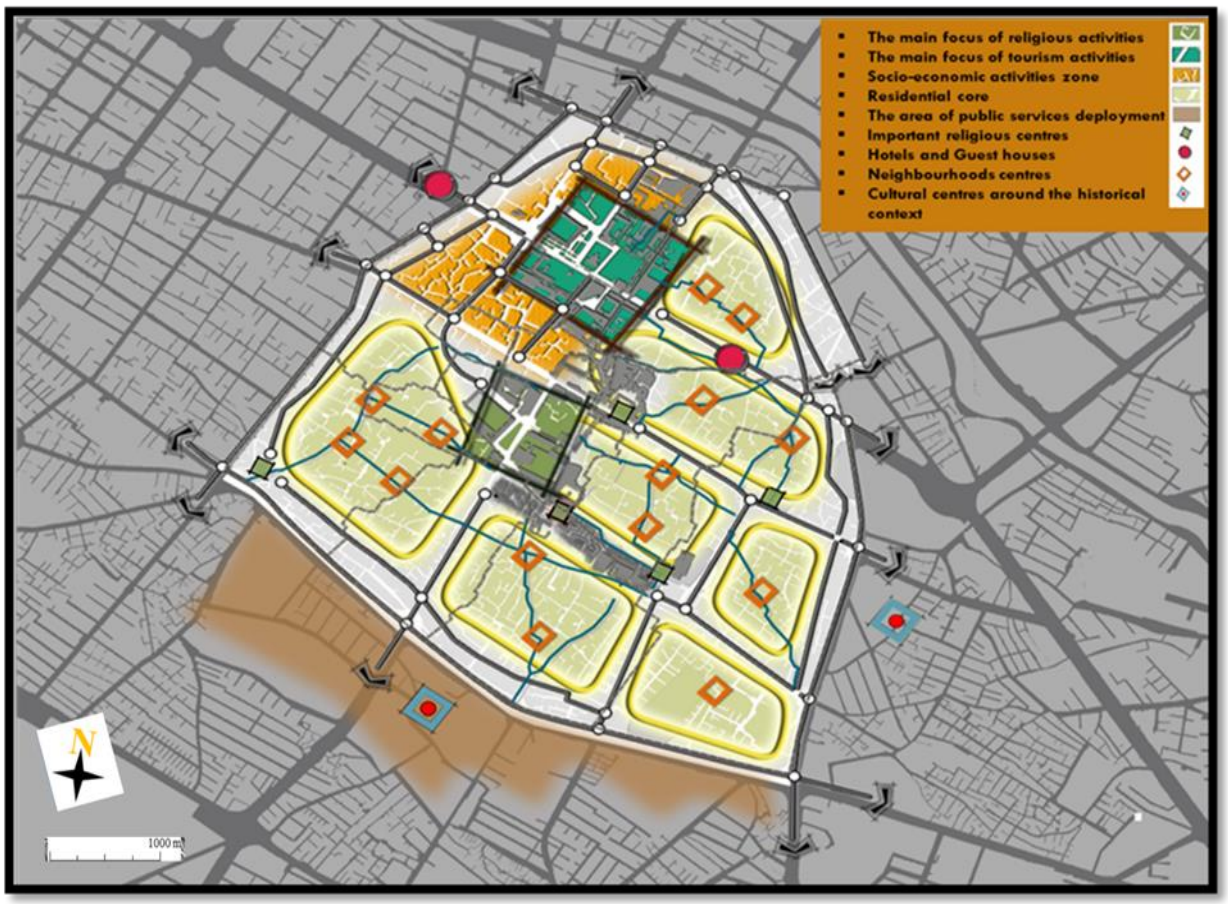

Figure 5. 38 Shows the location of each category in Shiraz's historic fabric. (Source: map generated by the author, using Shiraz Municipality data).

5.5.5 Conclusion of social stratification

The socio-economic classification status in Shiraz city and of the historic fabric in the final analysis indicates that in terms of occupational groups, level of income and literacy level, the historical fabric in comparison to Shiraz city has occupied a lower socio-economic position. Also, the comparison of the status of the historic fabric with former periods shows a declining trend. Therefore, one may conclude that the low socio-economic position in the historic fabric has had a negative effect on its social position. This issue has also caused and increased social unrest and reduced social security in the historic texture.

5.5.6 Cultural transformation

At this stage it is necessary to address the transformation of Shiraz's historic core to understand the effect of culture during the pre-Islamic and Islamic eras on the formation of the city. This is important to know because according to literature review (Sarvarzadeh, 2012) and analysis of Figure 5.39 which is presented below, cultural transformation is connected to important factors such as the responsibility of the residents to participate in urban historic fabric and many other elements. It is also important due to the link between the lack of practical and legal system of resident participation and structure of mixed-heritage rehabilitation. Therefore, the following section will present the formation of Iranian cities in pre-Islamic and Islamic eras and its importance to the rehabilitation of Shiraz historic core.

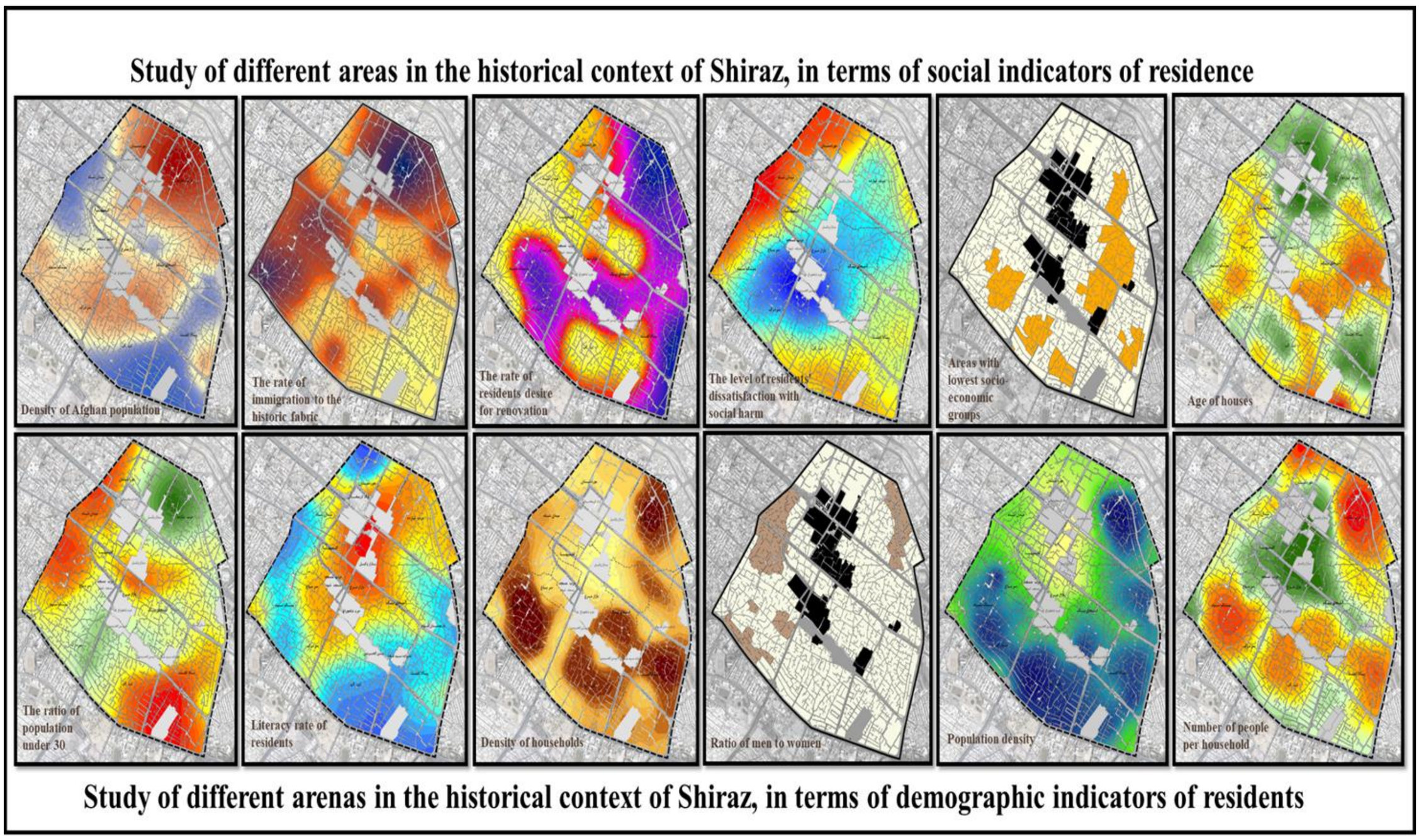

Figure 5. 39 Shows important socio-cultural elements in Shiraz's historic fabric. (Source: map generated by the author, using Shiraz Municipality data).

5.5.7 Iran's pre-Islamic urban culture

Iranian's pre-Islamic urban structure had been built following a specific scheme in every period based on the culture at the time. Table 5.6 shows the styles and influences during each period.

Pre-Islamic Periods	Urban design scheme	Important factors	Important influences
Median era	City shaped in Persian style	• Politics • Commerce • Religion • Culture	Great impact on building framework spaces
Achaemenid era	Followed the Persian style		• Hierarchical class culture • Shape of cities was square (based on religious beliefs) • Material of buildings presents the class culture
Seleucid era	Used the Hellenistic-Persian style		
Parthian era	A new style was designed	• Politics • Religion • Producers • Villagers	• Formation of the city was based on social class culture • Removal of Greek style and symbols • Presented the new hierarchical system to design the cities
Sasanian era	Followed the Parthian schema		

Table 5. 6 The summary of Shiraz's formation in its pre-Islamic era.

5.5.8 Iranian post-Islamic urban culture

Chapter 2 described how Islamic culture is family-centred and associated with equality, fraternity and horizontal/vertical mobility, which aids urban social mobility. Therefore, Islamic laws affect urban structure due to the particular social cohesion, which is unique to Islamic cities. It also affects city design and organisation, centring around buildings such as the public mosque, mal (Bazaar), quarter mosques, schools, monastery, tombs, charity and urging people to donate endowment assets to good causes (Figure 5.40).

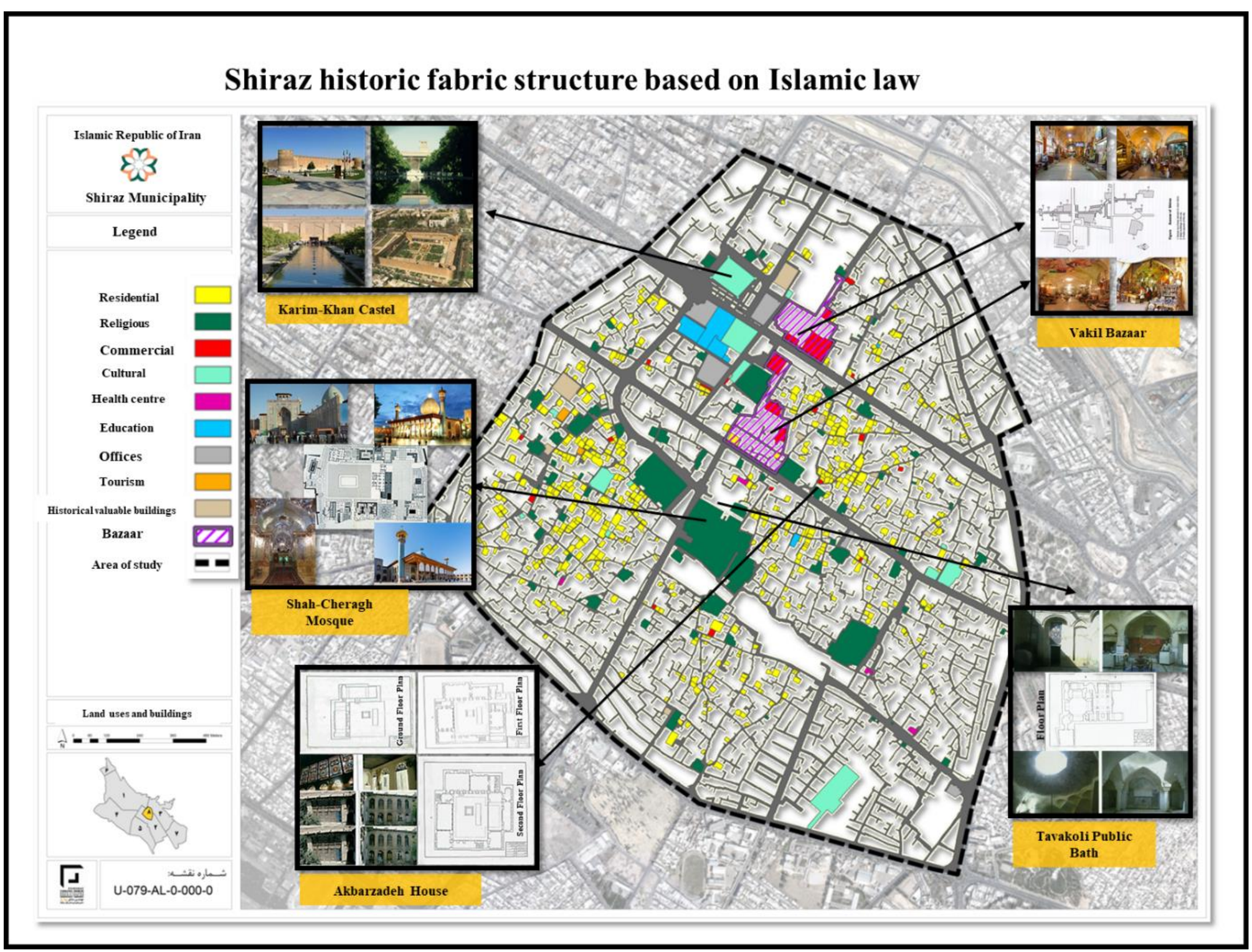

Figure 5. 40 The organisation of land use in Shiraz historic core; (Source: map generated by the author, using Shiraz Municipality GIS system and census data).

5.6 Physical form characteristics shaped by religious, political, economic and socio-cultural factors

This section will summarise the role of religion, politics, economy and socio-cultural factors on shaping the physical form of Shiraz historic core.

5.6.1 Religion and law

There are many historic buildings and monuments located within Shiraz historic core. These monuments have been protected as a result of the Governmental action plan and local laws. These laws have regard for historical period, cultural and religious values; type of decorations and their quality; architectural features, condition of structure; type of roof coverage; ownership status, and type of household. Unfortunately, the economic benefits from being designated a "World Heritage Site" and the needs of Islamic culture are not fully compatible with each other. The World Heritage status guidelines are defined by Western ideas of cultural heritage and pay little regard to Islamic tradition and values. An alternative framework for evaluating Islamic cultural heritage that puts a much higher premium upon privacy is therefore needed.

Monuments remain from the Atabakan Era right through to recent times (Figure 5.41). Most relate to the Qajar period others were constructed during Zand, Safavid, Saffarid and Pahlavi periods. Their locations are illustrated on the following maps.

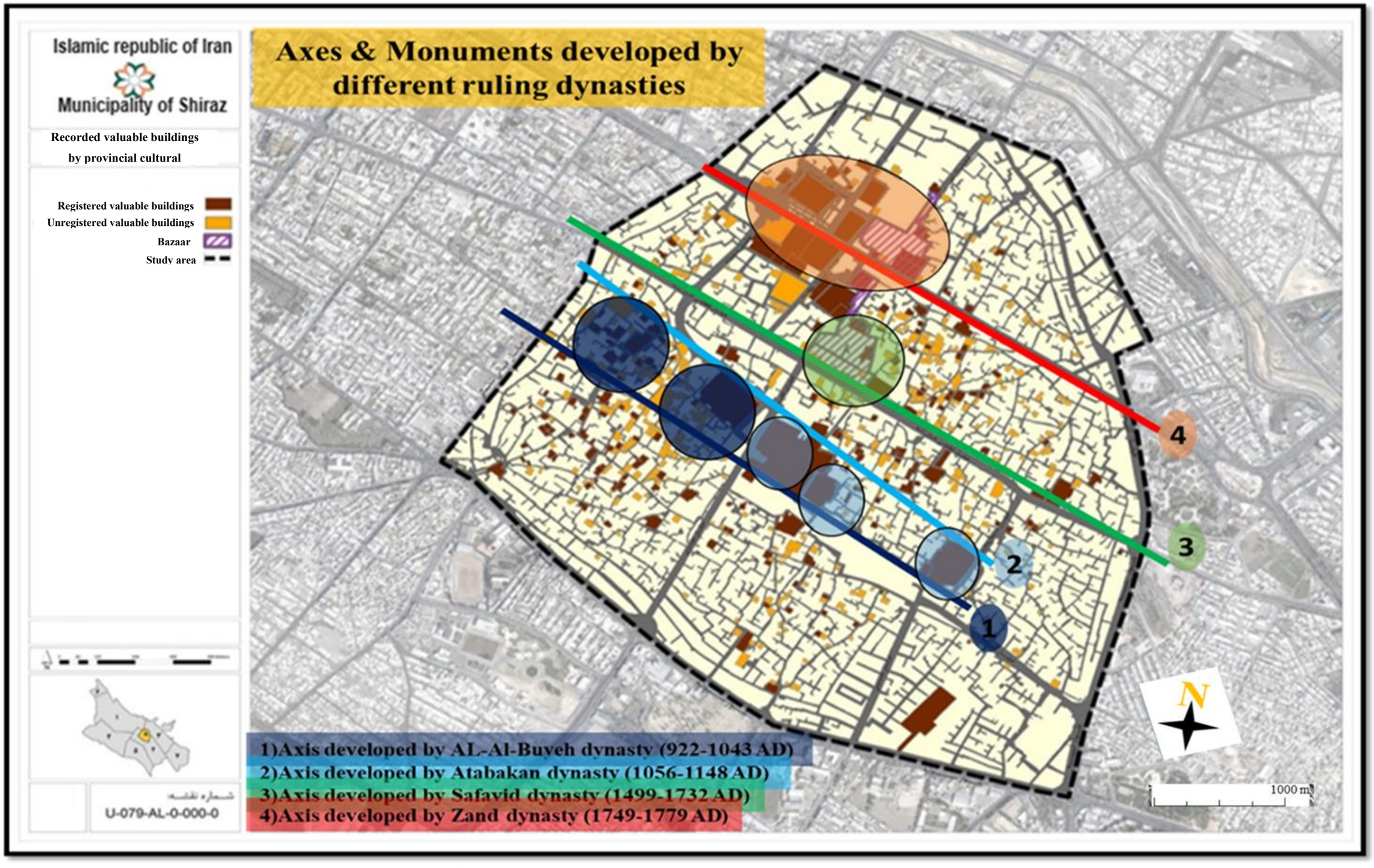

Figure 5. 41 Axes and monuments developed by different dynasties in Shiraz's historic fabric; (Source: map generated by the author, using Shiraz Municipality GIS system and census data).

5.6.2 Politics

Today the city of Shiraz consists of eleven neighbourhoods. The historic centre of Shiraz is surrounded by a peripheral road that separates it from the rest of the city.

The borders of the historic core represent a crude ring that is connected to other parts of the city by gates and plazas. Figure 5.42 shows the boundaries of the historic neighbourhoods first established during the Qajar Period. They constitute a unique patchwork quilt of local communities that constitute a culturally granulated texture.

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Figure 5. 42 Subdivisions of neighbourhoods in the historical context of Shiraz; (Source: Author based on Shiraz Municipality).

Experience of reconstructing urban tissues in Shiraz indicates that incorrect planning, such as superficial preservation of historical sites, has led to serious damage to many valuable urban tissues in the country. The main points arising from this experience include the following points:

- The rate of damage and decline in urban tissues is much faster than the preservation rate.
- The process of decline and urban decay still continues as a result of proper planning and the lack of proper, comprehensive designs

- The role of people's participation in deciding and planning activities has been insignificant.
- The separation of valuable textures from new textures has led to independent procedures for preservation and progress.

5.6.3 Economy and politics

Falamaki (2005) and Mahmoudi and Lozanovska (2015) argue that the shape of the historic core of Shiraz was determined by the main trade routes, agricultural lands and castles in the pre-Islamic era. It was founded in the pre-Islamic era. Remnants from this period still exist today in the form of street patterns and the climate-led design of houses. Figure 5.43 presents the ancient Asian trade routes and shows that Shiraz was an important point of conjunction between Europe, Arabia, India and China.

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Figure 5. 43 The location of Shiraz city within Asian trade routes. (Source: www.reddit.com, 2015).

The pre-Islamic and Islamic history of Shiraz is important because the arrival of Islam not only influenced the design of the city, it also re-shaped the neighbourhoods and the nature of social activity. This period of development is summarised in the timeline presented in Figure 5.44.

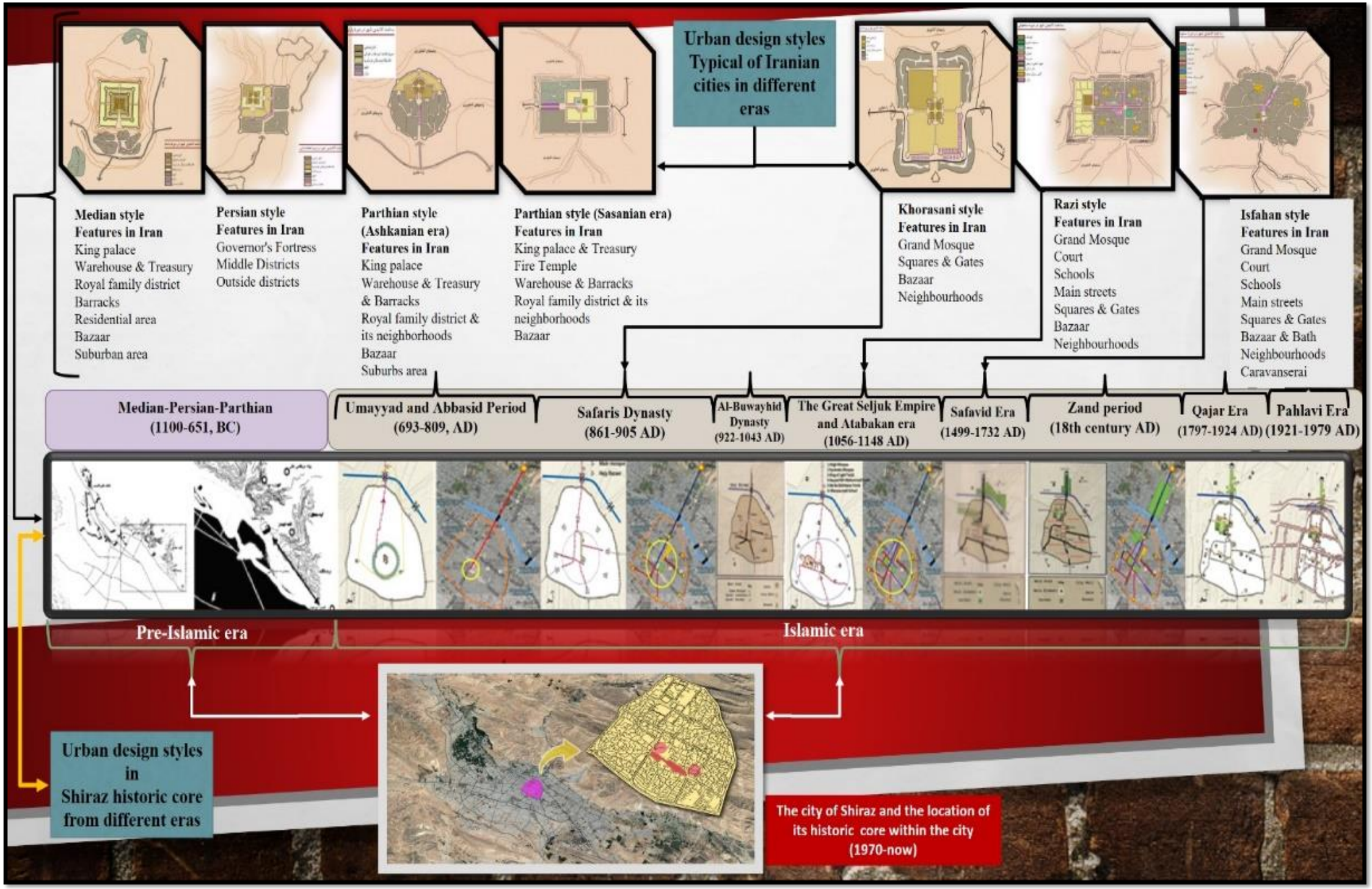

Figure 5. 44 Historical transformation of Shiraz Historic core in Pre-Islamic and Islamic periods with regards to different urban development styles in Iran, (Source: Author based on Shiraz Municipality data).

Figure 5.45, shows that, except for the bazaar, the seat of local administration oscillated between north and south during different periods. During the Atabakan period (1046-1148 AD), the buildings and monuments were located alongside one axis which had been the southernmost position. During the Safavid (1499-1732 AD), Zand (18th Century AD), Qajar (1797-1924 AD), and the Pahlavi eras, however, the seat of government gradually moved towards the north and west.

The city developed beyond the former structure (in all directions), triggering the immigration of non-indigenous groups. The process of building new streets in the Pahlavi era was influenced in part by regional geographical factors (the gradient of the land from west to east, the direction of the streams, the garden), the fundamental demographical factors (the population, etc.) along with social and economic factors (security and the price of land) have each played a part. These transformations can be seen in Figure 5.46.

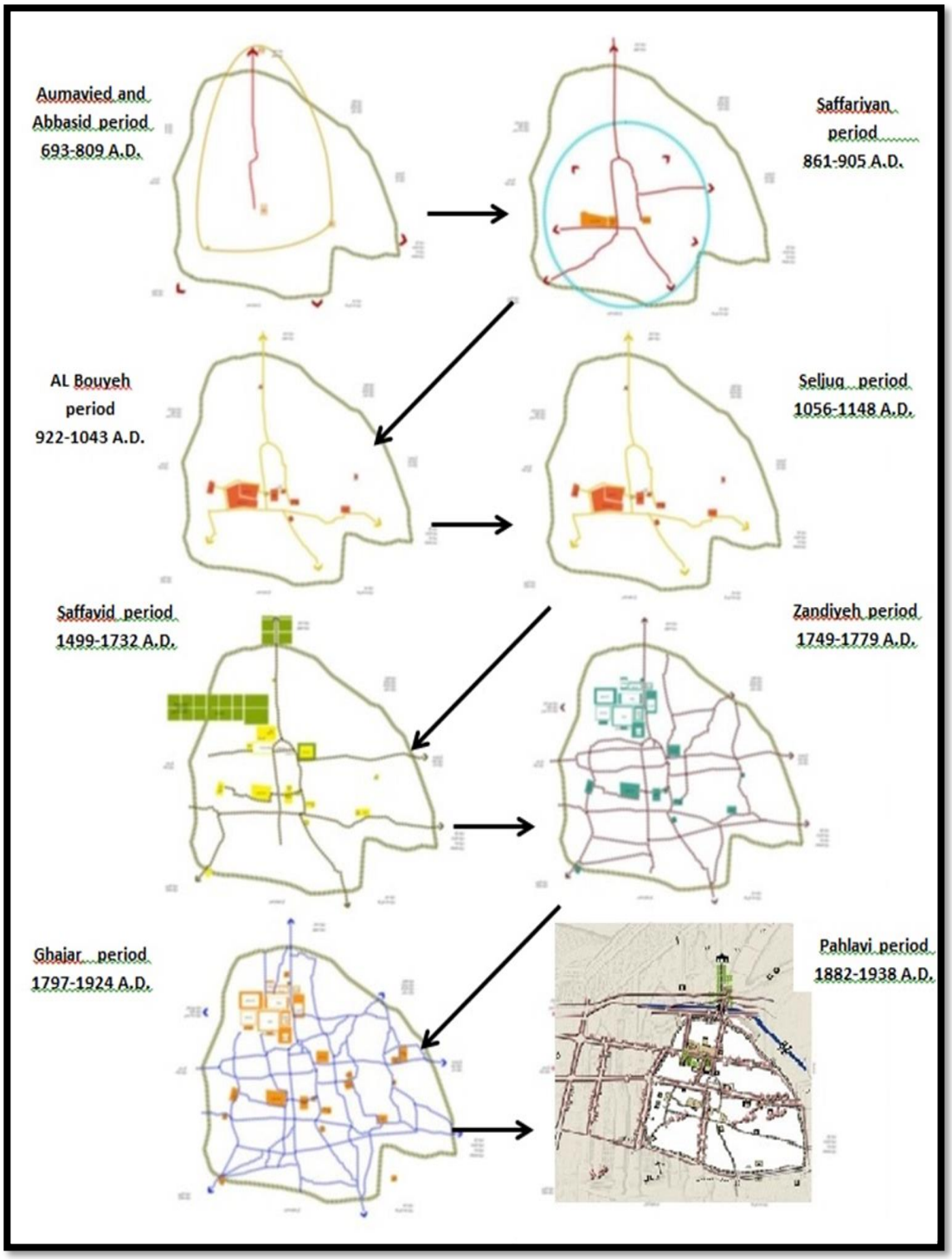

Figure 5. 45 The situation of historical streets, monuments and the places in different periods; (Source: Author base on Municipality data).

5.6.4 Socio-cultural factors in relation to physical form

Using data from socio-cultural Shiraz Municipality which was analysed by the author revealed that some factors affect the urban form and need to be recognised and dealt with in a rehabilitation strategy. These factors include: immigration from within the historic core to outside of it and vice versa; the population of local residents compared to the population of migrants; the education level of the residents; population density; crime rate; household size; high percentages of illiteracy; increased insecurity and disorder; proportion of people actively practising religion, and decreased feeling of loyalty to the place of residence. Each of these individually can affect the urban density, since dissatisfaction with the area can cause residents to move; they can change the social behaviour of residents due to cultural differences and they can affect social activities.

Figures 5.46 and 5.47 show how religious and cultural buildings are centrally located within Shiraz and that the residential buildings are formed around them. These buildings serve the needs of the residents' culture and beliefs.

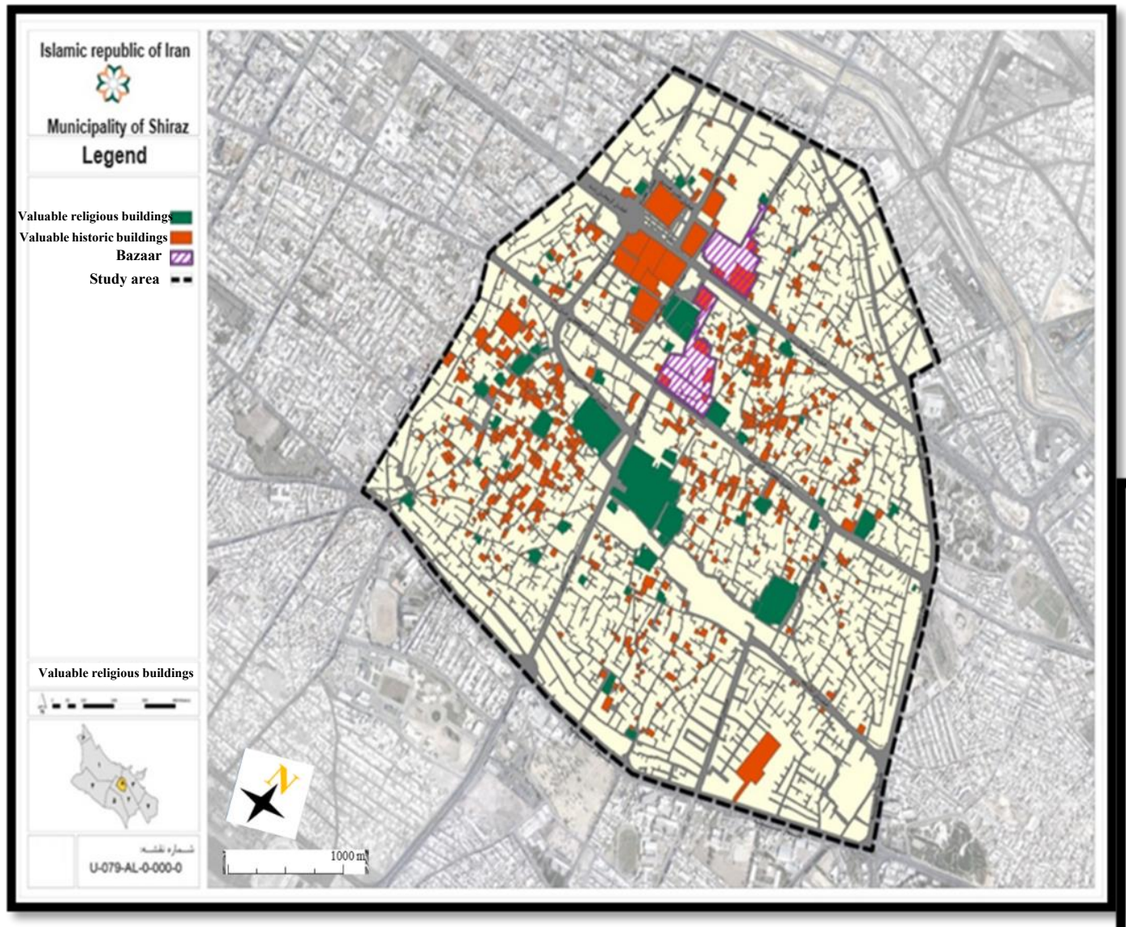

Figure 5. 47 The valued religious buildings in Shiraz's historic fabric; (Source: map generated by the author, using Shiraz Municipality GIS system and census data).

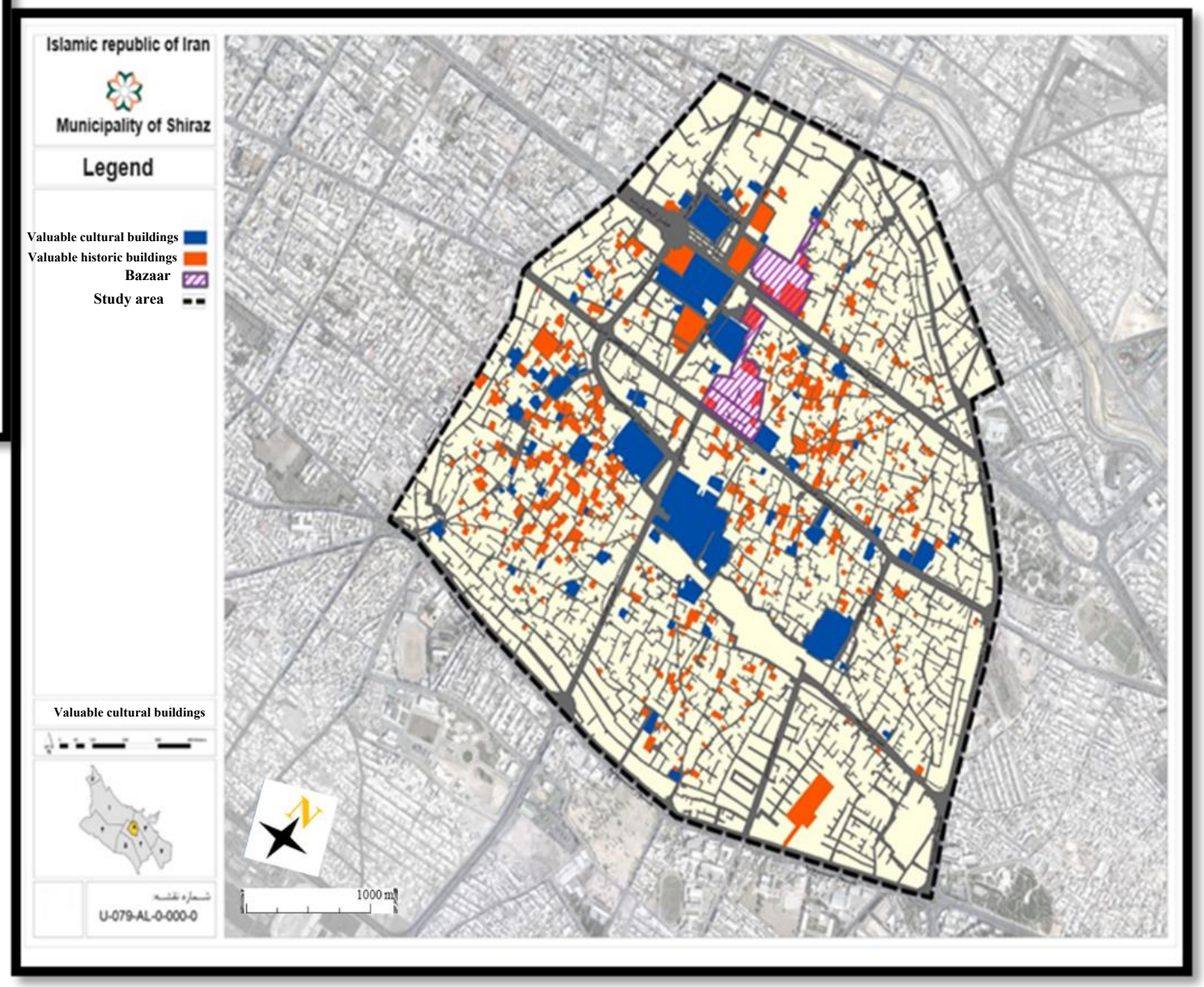

Figure 5. 46 The valued cultural buildings in Shiraz's historic fabric; (Source: map generated by the author, using Shiraz Municipality GIS system and census data).

5.6.5 Morphological components

Some of the main features of Shiraz's historic core that have become principles in the city and in its structural context are as follows:

1) Spatial continuity between the urban structures due to environmental factors such as climate.
2) The principle that topography is the foundation of the organic formation of the city.
3) The merging of public spaces causing greater interaction between social classes.
4) Pre-Islamic, Islamic and modern principles regarding scale and dimensions of residential buildings and surrounding space.

These key principles affecting the formation of Iranian Historic fabrics will be described as follows:

- **Spatial continuity**

Traditional Iranian cities are based on the physical link between the elements of space, such as a square, Main Street, city centres and neighbourhoods. Spatial continuity between monuments can be seen through climatic considerations such as the covered bazaar which provides shade from the sun and links to both the citadel and the mosque. The origin of these features is seen in older cities located near the desert.

- **Topography**

Based on an interview with the headquarters of the Urban Development Department of Shiraz Municipality (Appendix 1, Question 3), previously, Shiraz's limits were defined by the river and mountains. At the time, it consisted of a collection of unified localities and great junctions (such as Shah-Cheragh, Jame Mosque, New-Mosqu, Moushir Mosque, and several gates and gardens) complemented this structural foundation (Figure 5.48).

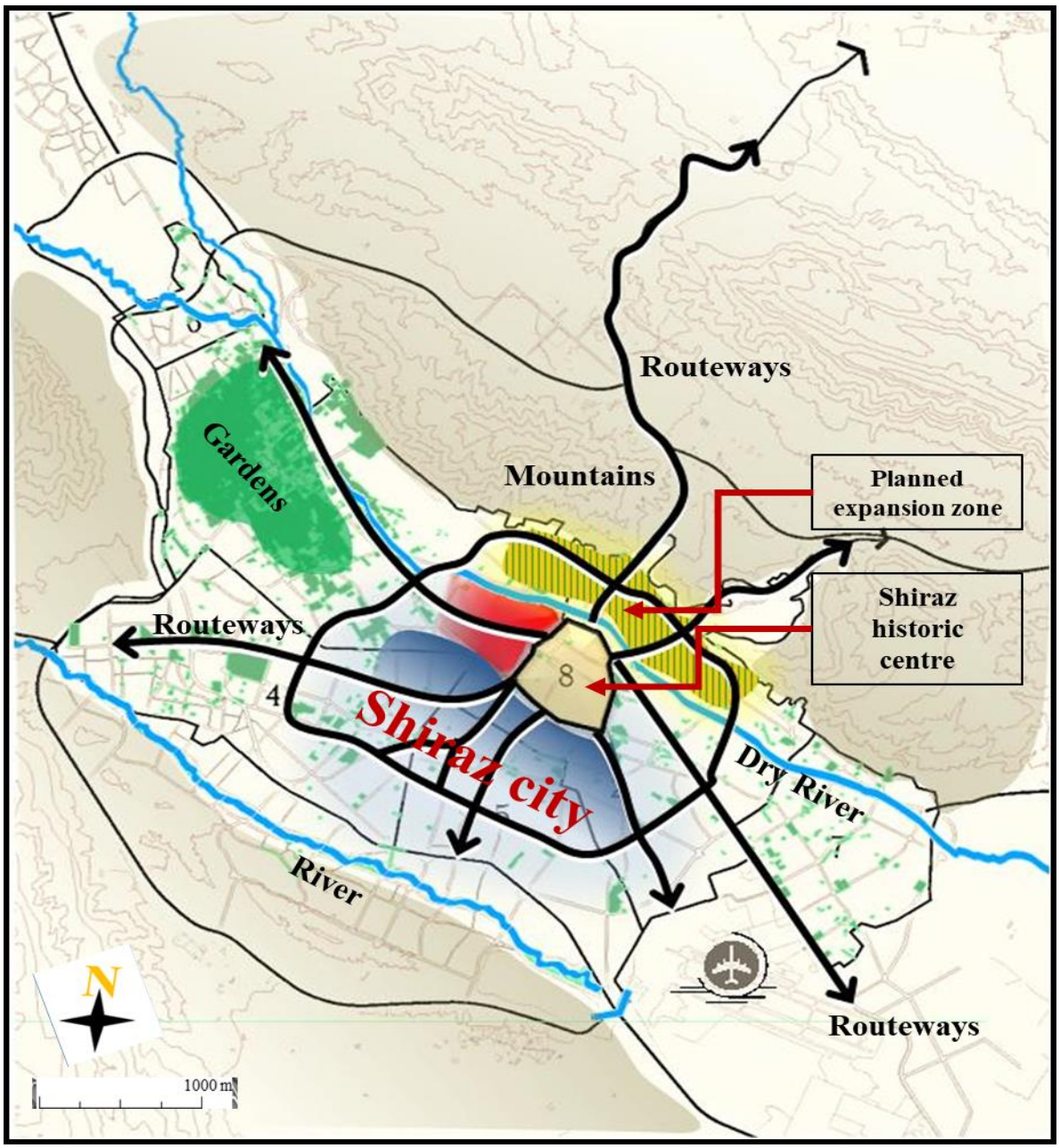

Figure 5. 48 The influenve of topography on the shaping of Shiraz's historic fabric; (Source: map generated by the author, using Shiraz Municipality data).

- **Public social spaces**

The Islamic Revolution of 1979 brought about the disintegration of social hierarchies and brought more unity between social classes (Habibi, 2008). As a result, public social spaces are now shared more evenly between social classes and different religious groups, for example at religious festivals and traditional celebrations.

5.6.6 Pre-Islamic, Islamic and modern principles regarding dimensions of urban elements and space

In the older cities of Iran, residential premises are joined by a central courtyard and constitute an integrated set of residential spaces (Figure 5.49, sections 1, 2, 3, 6, 7). The direction of residential units in urban areas has been influenced by the different disciplines that were established from the different styles mentioned previously, and these specific proportions were used to determine the size of the courtyard and allocation of space within the house, relative to the volume of the surrounding space. The size of courtyard components, like gardens, the size of halls, porches, rooms, doors and windows all have a specific scale.

To achieve an attractive urban space, there must be an optimal amount of surrounding space, (Figure 5.49, sections 4, 5, 8). In fact, it can be stated that the primary principles governing the design of urban spaces, are determined by the surrounding space. Urban elements, neighbourhoods or residential units are typically surrounded by elements occupying limited space. According to this principle, humans are the most important factor when considering the space therefore, the space should have a human scale. Once this principle is established, space between buildings arouses human emotions. A feeling of unlimited space draws attention away from the distance between buildings and gives more pleasant and varied views.

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Figure 5. 49 Shows the role of courtyard in shaping urban spaces in Iranian historic houses and its effect on a large scale on urban historic fabric in Iran and in Shiraz historic core. (Source Author: based on Nazemi, 2014; Gardeshgariran.com, 2015; Rastiemadabadi, 2015).

Figure 5.49, **1)** Shows six traditional Iranian courtyard houses: (**2)** Analysis of the Movahedi House in Kerman (in picture 1c) shows the orientation of (a) the house and (b) the courtyard; **3)** The classification of courtyard building typologies based on the prevailing social class of the locality and composition of spaces around the courtyard. **5)** classification of different typologies according to spatial arrangements existing among closed, semi-closed, and central open spaces: (a) built areas located on the opposite sides of the courtyard; the two lateral walls are implemented with decorative elements (or short-depth semi closed spaces) pursuing the dominant geometrical pattern of the building; **7)** shows the central courtyards in a historical house (Meshkinfam House, Shiraz); **8)** shows the optimal amount of surrounding space of a main courtyard shared between several houses with a shared entrance (semi-private open space as shown in number 5 of this figure).

Based on the natural capital highlighted in Figures 3.26 and 3.27, consideration will be given to natural capital and physical dimensions:

- **Organic structure:** The shape of the old passages and alleys constitute a non-geometric labyrinth. The passages not only constitute a route system, they also represent a hierarchy consisting of main branches leading from the city to subsidiary branches denoting locality and minor alleys some of which lead to dead-ends (neighbourhood routes) bring comfort by reducing traffic and noise.
- **Local materials:** The buildings have been constructed with local materials and by soil extracted by excavation of a ditch around the city. For this reason, this provides a holistic integration and appearance of unity. The facades of buildings have been designed a uniform pattern with details and decorations within the interior walls of these buildings.
- **Climatic considerations:** The buildings and alleys accommodate the prevailing hot desert climate, providing shade and comfort for the residents. Due to the intrusive winds and high density of buildings yards are built smaller with more labyrinthine passages. Similarly, humid, cool basements were frequently utilised. Air holes installed under flat roofs promote air circulation throughout the house and in some cases wind channels has been utilized through the physical positioning of the buildings. Pools of water were also employed to cool the flow of air.

Efforts were also made to reduce the intensity of sunlight by deploying lattice windows with colourful glass. In summary, climatic considerations have influenced:

- Building direction
- Building shape
- Building placement
- Closed spaces
- Shape, proportion and placement of courtyards
- Utilization of water and plants on the exterior of buildings
- Semi-open spaces

These physical characteristics prompt consideration of the socio-economic and political dimensions of the historic core. These include:

- **Security and identity:** The physical structure and proximity of neighbours promotes a sense of belonging and identity that ensures that outsiders are quickly recognised as not belonging to that area of the city. The physical structure also reflects the talent, taste and accumulated knowledge of many generations that serves to reinforce the sense of local identity.
- **Privacy:** Privacy has long been a feature of historic Iranian cities and promotes a strong sense of local sub-cultural identity since people only interacted with close neighbours. Previous social hierarchies meant that people of specific trades lived in close proximity to each other, so deep relationships were based on working and living together.

5.7 Key findings of this chapter

At this stage analysis of maps will be presented to show how changes relating to religion, politics, economics and socio-cultural factors affect the formation of Shiraz historic core and accessibility, permeability, identity and urban quality within Shiraz's historic neighbourhoods. In this regard, the following sections will present the findings of the analysis concerning the five key elements important in the process of rehabilitating historic fabric in Shiraz. The first section presents the findings based on the analysis of historical development in Shiraz's historic core.

5.7.1 Historic findings

The findings from the historic background show that a number of the buildings in Shiraz historic fabric are recognised by UNESCO and the Iranian Ministry of National Heritage as having World Heritage Status. These buildings are protected by the Iranian National Monuments Protection law (1930) and the Athens charter in order to protect, preserve, improve, conserve, adaptively reuse and rehabilitate the buildings and some historic streets and neighbourhoods as historic monuments. The analysis of figure 5.48 shows the location of these buildings and areas in Shiraz's historic fabric and the era in which they were built.

Figures 5.50 and 5.51 show that the historic fabric has deteriorated due to demolition between the Zandiyeh (1751-1794), Qajar (1794-1925) and Pahlavi (1925-1979) eras.

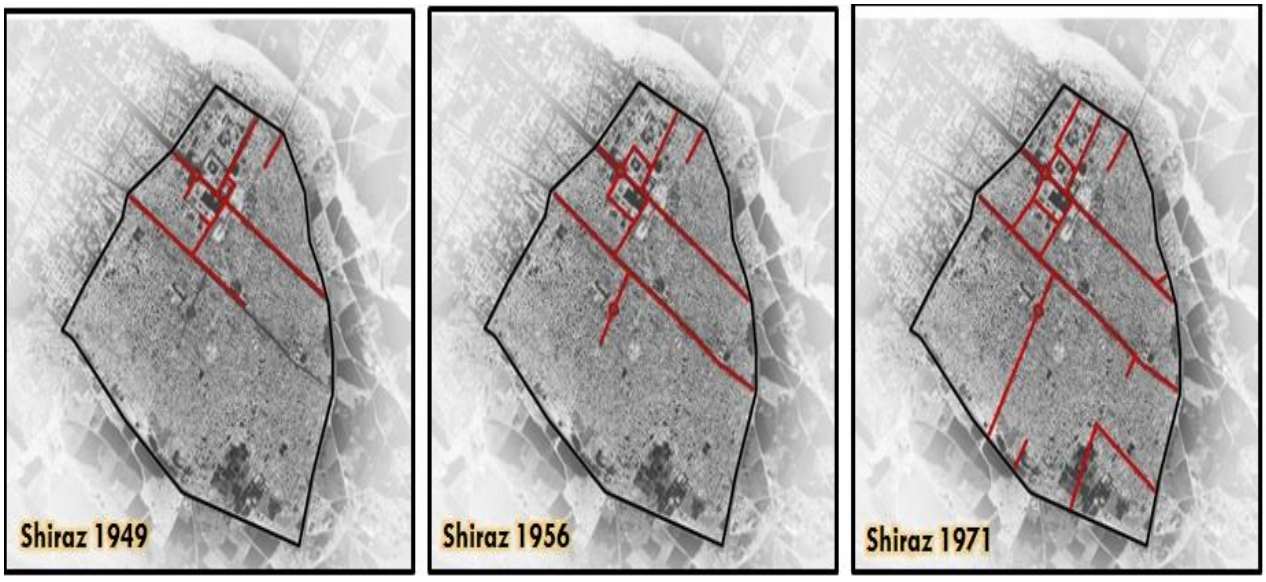

Figure 5. 50 Shiraz's historic fabric transformation in terms of expanding old passages and establishing new connections; (Source: map generated by the author, using Shiraz Municipality data).

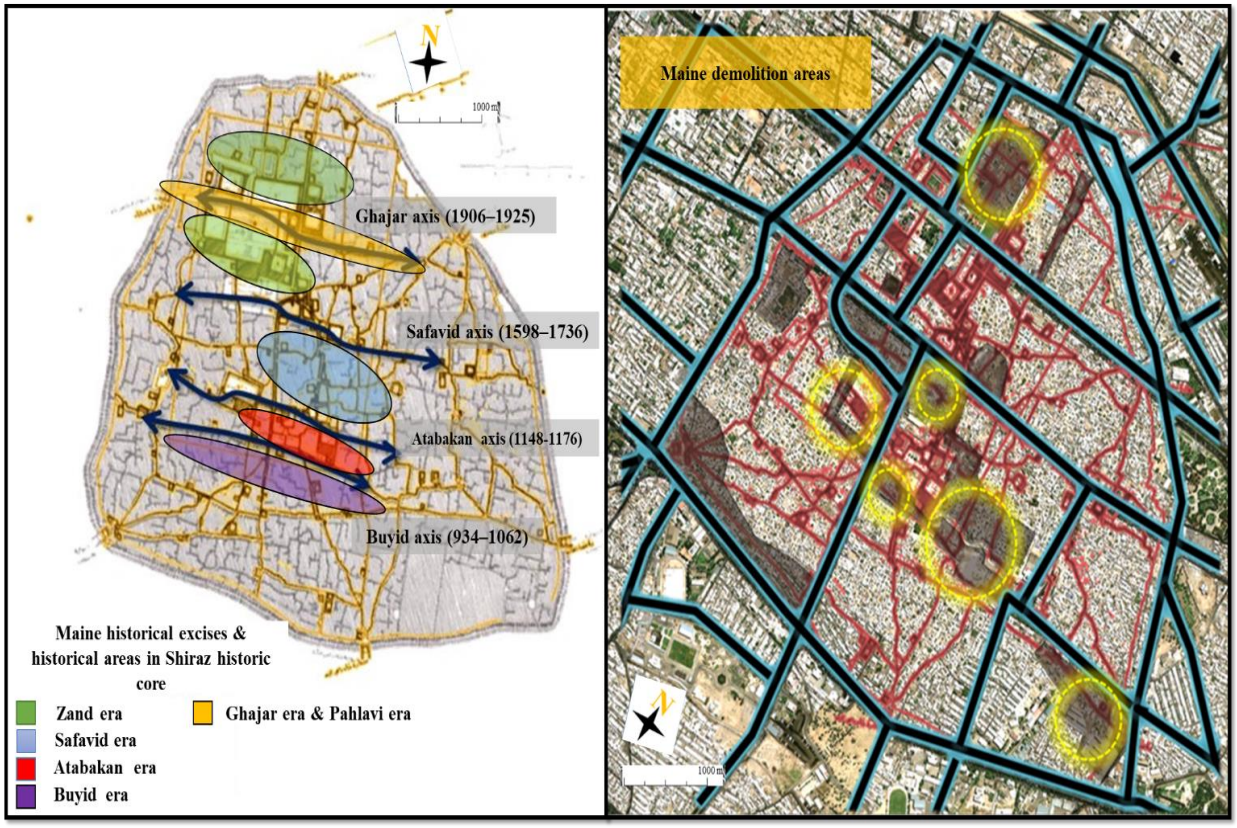

Figure 5. 51 Shiraz's historic fabric transformation in terms of expanding old passages and establishing new connections; (Source: map generated by the author, using Shiraz Municipality data).

Analysis of maps and municipality reports (2015) show that some houses that are not recognised as worthy of protected status yet they date back to the historical eras of Shiraz development. Therefore, it is needed to consider them in the rehabilitation plan of Shiraz historic fabric. Figure 5.52 shows the location of some of these houses in the historic core of Shiraz.

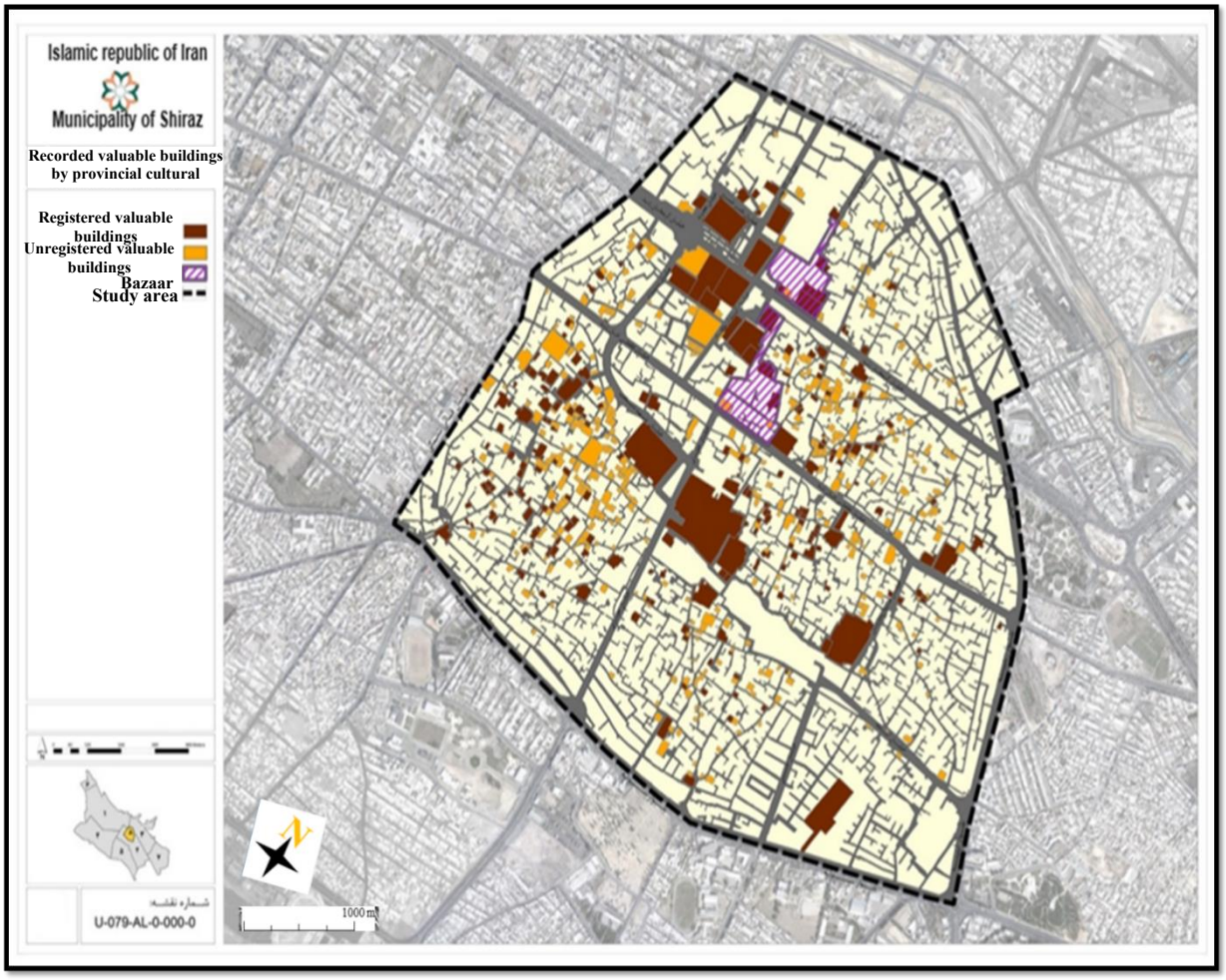

Figure 5. 52 The location of recorded and non-recorded valuable buildings by provincial cultural heritage in Shiraz historic fabric; (Source: map generated by the author, using Shiraz Municipality GIS system and census data).

From data collection and analysis of data regarding the key aspects of the rehabilitation process in Shiraz's historic fabric, the findings can be categorised as follows:

5.7.2 Religious findings

Analysis of the maps of Islamic cities in Chapter 2 of this research and of Shiraz historic core in this chapter shows that Islamic cities can be characterised by the presence of mosques, caravanserai and bazaars, the public and private street networks, separation of residences from public buildings, complex access levels, yet still allowing access from every neighbourhood to the mosque and bazaar. Islamic cities can also be characterised by urban elements such as houses, neighbourhoods, schools, squares, gardens, baths and cemeteries, all of which can be seen in Shiraz historic fabric. The Grand Mosque is usually located in the heart of Islamic cities; this is also the case in Shiraz, where neighbourhoods were shaped to surround this important religious monument. However, modernism threatens the identity and morphology of these Islamic cities and therefore, a

rehabilitation method needs to pay consideration to the religious identity and its impact on the formation of Shiraz through the following:

- Consideration for Islamic architecture for the construction of residential buildings
- Consideration for the mosque being synonymous with the identity of Islamic cities
- Consideration for access from neighbourhoods to the Grand Mosque and neighbourhood mosques
- Consideration of urban planners for Islamic ideology in urban design, through familiarity with Qur'an

Figure 5.53 shows how, like the Grand Bazaar, the Shah-Cheragh Mosque was a focal point for development and over the latter half of the 20th century, passages and houses built up around the complex.

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Figure 5. 53 Development of Shah-Cheragh Mosque; (Source: Author based on Shiraz Municipality).

5.7.3 Political findings

Section 5.1 of this chapter regarding religion and section 3.5 of chapter 3 identified that master plan and development plans in Islamic cities and in particular in Shiraz were designed based on Islamic law and ideology. In that regard it was identified that urban

neighbourhoods as clusters, the structure of historic context and the position of historic passages play a crucial role in the formation of Shiraz historic core, and are considered in both the master plan and the development plan of Shiraz. However, the author's observations identified that recently part of the historic core was demolished in order to make more space for economic activities, which affect the unity of urban morphology and structures of Shiraz historic fabric. These actions are carried out by decision makers without respect and understanding of the value of this historic fabric, but solely with regard to improving the economic situation in the historic zone. Therefore, it is important to consider such actions in the rehabilitation plan for this area. Figure 5.54 demonstrates how large parts of the historic fabric with high historic value were destroyed to make way for the expansion of the Shah-Cheragh complex. The photograph on the top left shows the city before the demolition, and the top centre photograph shows the cleared buildings and new roads after demolition. The demolished area is shown in yellow in the top right map.

Figure 5. 54 Development plan of Shah-Cheragh Mosque and establishment of the new expansion project, known as Bain-Al-Haramain (Between two Shrines). (Source: Shiraz Municipality).

To illustrate this point, Figure 5.55 shows the location of the valuable historic monuments and historic streets and land use whose form was based on Islamic law and development, from the Islamic period until now. Analysis of this map shows that for the rehabilitation of Shiraz historic fabric, streets and passages play an important role and should be considered a main factor in the rehabilitation process.

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Figure 5. 55 The spatial structure of the historical context in the present situation in Shiraz's historic fabric; (Source: Shiraz Municipality).

5.7.3.1 Identification of different zones in Shiraz's historic fabric

According to Shiraz Municipality report (2015), different areas within Shiraz's historic fabric were identified that are critically related to issues of affecting physical form, social activities and economic activities. The results of this investigation are presented in Figure 5.57. It shows that there are three categories of areas with problems:

A. Large areas in the city that have severe problems in terms of quality of housing, social and religious activities and urban form. These areas must be a priority for rehabilitation in Shiraz.

B. Areas which have severe problems only in terms of the historic urban fabric, but not in terms of housing or social activities

C. Areas which are critical in terms of housing and activities, but not in terms of historic urban fabric

D. Areas which have low priority in terms of rehabilitation

While categories B and C must be targeted in rehabilitation, they must give priority to category A. Figure 5.56 shows the location of these areas within Shiraz historic core.

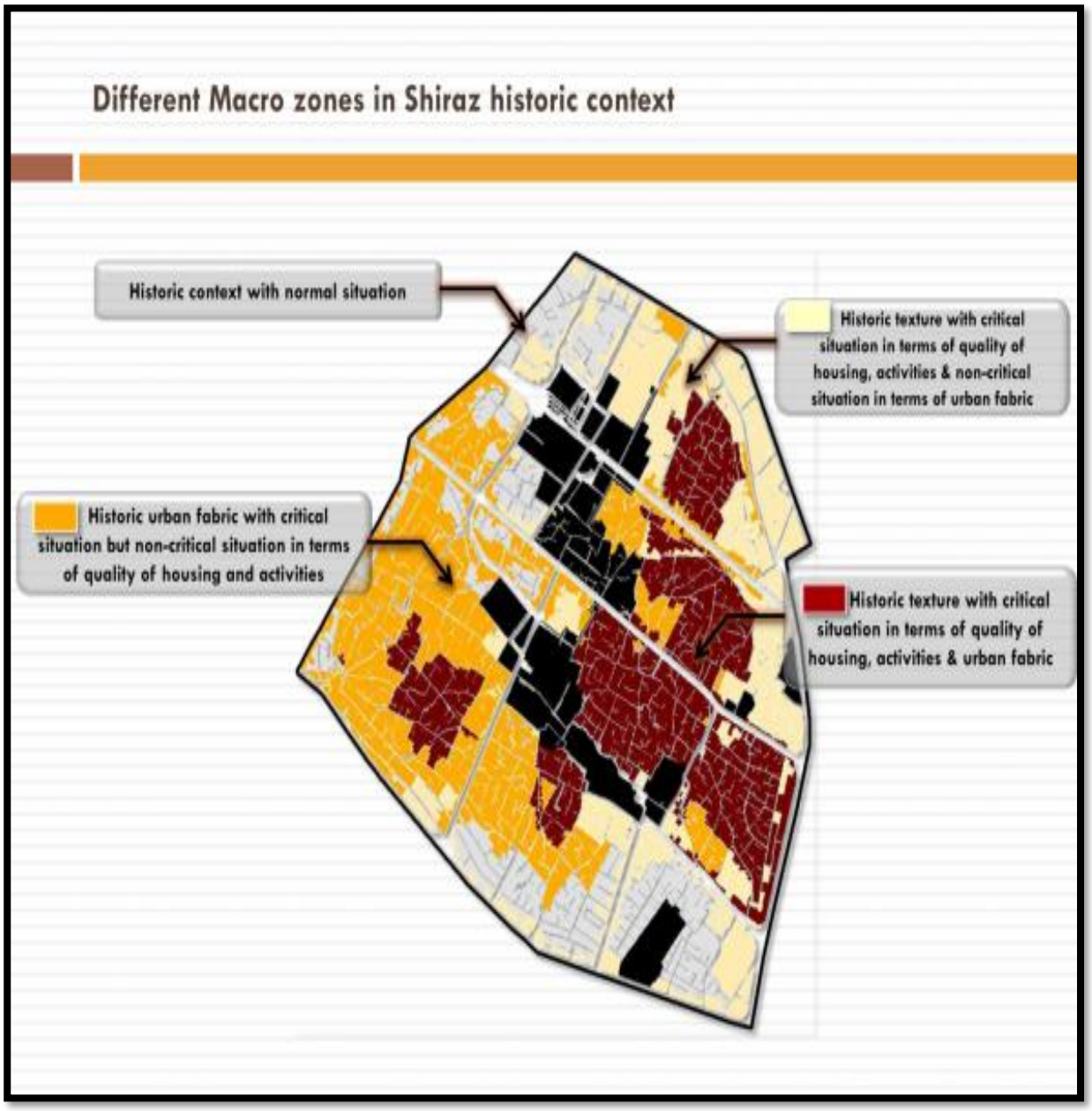

Figure 5. 56 Different zones in Shiraz's historic fabric; (Source: map generated by the author, using Shiraz Municipality GIS system).

5.7.3.2 The priority of planning and intervention in Shiraz's historic context

Therefore, the priorities for the Municipality of planning and intervention in Shiraz's historic fabric are presented in Figure 5.57.

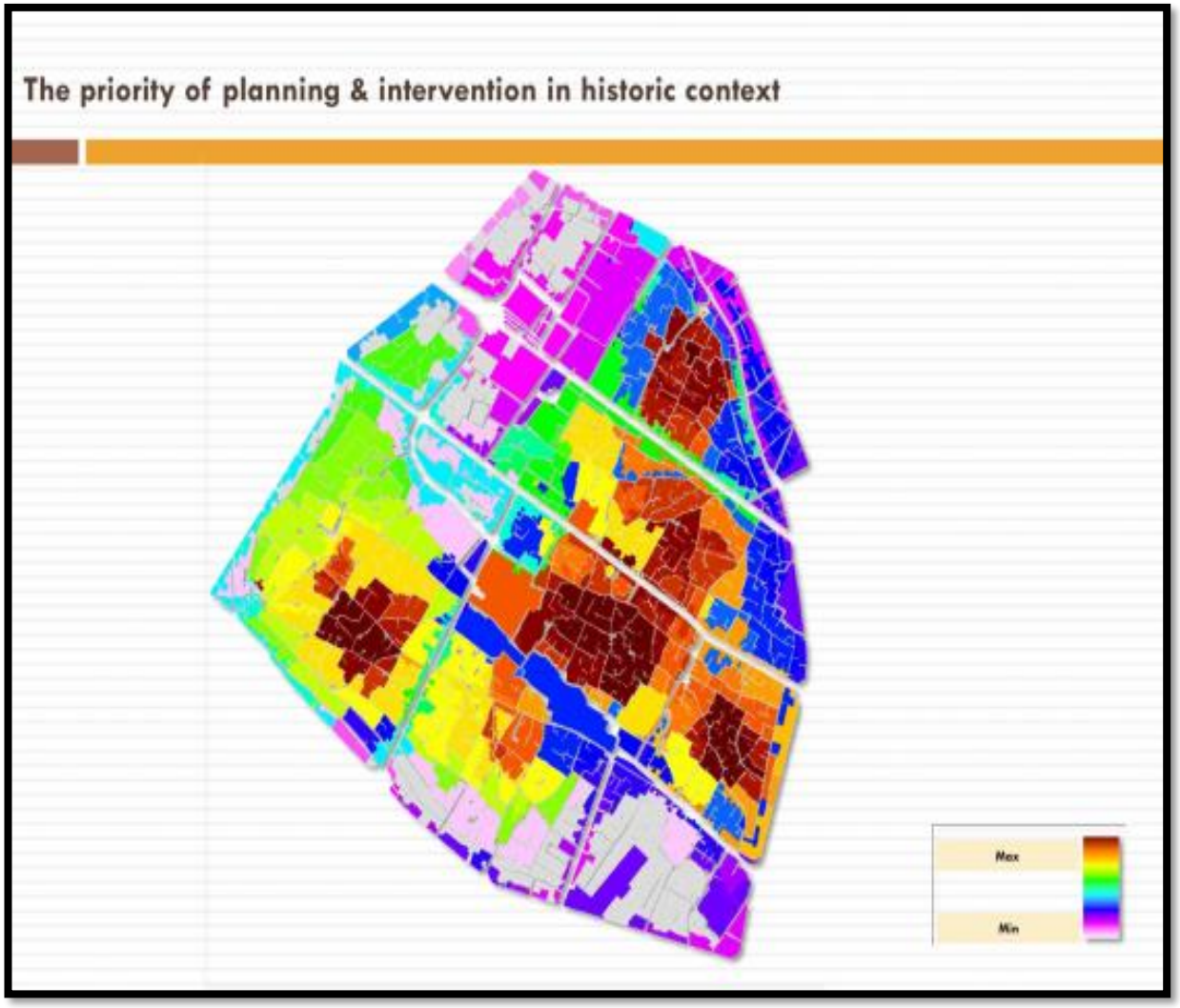

Figure 5. 57 Priorities of planning and interventions in Shiraz's historic fabric; (Source: map generated by the author, using Shiraz Municipality GIS system).

5.7.3.3 The main patterns of intervention in Shiraz historic texture

By combining all the above analysis, one may identify suitable methods and techniques of intervention under the rehabilitation approach for each part of Shiraz's historic fabric and which can be applied to different parts of Shiraz's historic zone (see Table 5.2).

A. Revitalisation zones: areas with highest priority for protection, preservation and recuperation. This zone contains the most culturally valuable heritage, where intervention is limited and so the priority is protection and preservation.

B. Revitalisation zones: areas where highest priority is protection, restatement, remodelling and adaptive re-use. The emphasis is on protecting the structure of historic buildings and the historic fabric, although the use of the buildings may be adapted to meet the needs of contemporary life.

C. Regeneration zone: areas where the highest priority is enhancing residential areas and improving the urban design qualities by reintroducing investment and restoring historic buildings and monuments.

D. Regeneration zones: areas where the aim is to protect the historic fabric, while attracting investment and responding to contemporary needs.

The identification by the government links to the methods and techniques identified by the author which are shown in Introduction Figure I.1. All of the methods and techniques fall under the umbrella of rehabilitation. Figure 5.58 shows the different rehabilitation zones, intervention methods, aims of the particular form of intervention and intervention policies.

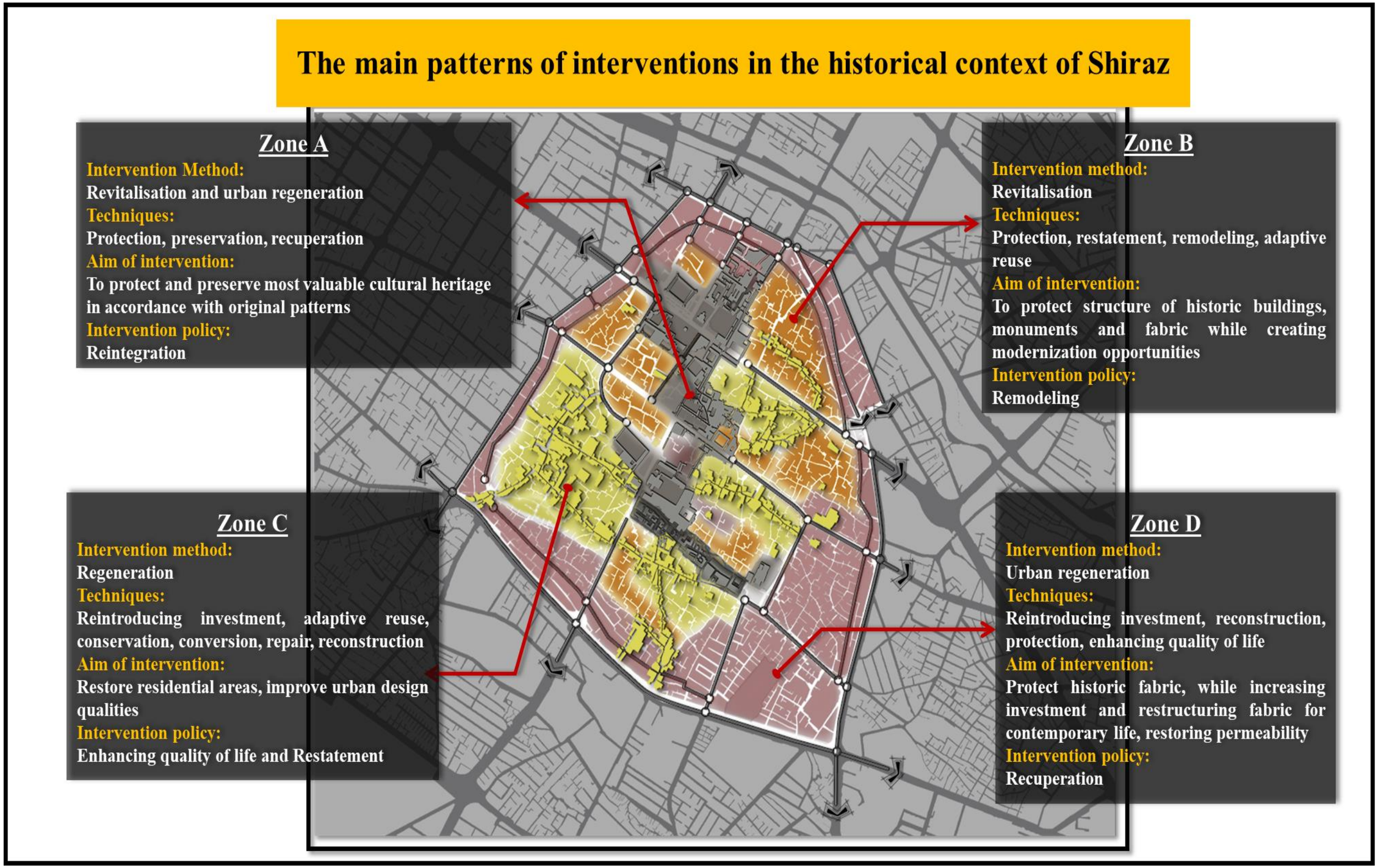

Figure 5. 58 Main patterns of intervention in Shiraz's historic fabric; (Source: Map generated by the author, using Shiraz Municipality GIS system).

5.7.4 Economic findings

This chapter identified several factors related to economic condition, which were examined during fieldwork and they are briefly as follows:

- Geographical favourable location with good accessibility to national trade routes, based on analysis of Shiraz on trade route maps
- Low-cost human resources
- Existence of economic zones and specialist markets formed in the historic core over different periods
- The existence of a traditional market in the historic core
- The presence of mosques also attracts people to the bazaar area, since they are in close proximity to each other
- The presence of trade centres in different parts of the historic core
- Some of the houses close to the bazaar are being used as warehouses for loading and unloading and are not fit for this purpose

All the above factors have positive effects on the economy and livelihood of the residents. However, the analysis of economic factors such as the income of the residents, rental and ownership rates and the rate of unemployment show the negative impacts on the economy within Shiraz historic core, the importance of which are as follows.

- Areas which are not suited to economic activity because of their lack of security
- Many vacant residential and commercial buildings due to unfavourable economic conditions
- Social conflict between different ethnic groups of low income affects economic activities negatively
- Lack of public transport, parking and public services on main roads and within neighbourhoods diverts potential customers away from businesses

Analysis of the economy in Islamic cities, including Shiraz, shows that the bazaar is the centre of economic activities. The bazaar's position is reinforced by the connections to the surrounding streets. Figure 5.59 shows how the Grand Bazaar influenced the shape of the city from 1501 onwards, as the streets and alleys formed around the bazaar in Shiraz historic core.

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Figure 5. 59 The impact of interventions on Grand Bazaar structure during Zandiyeh (left) 1751-1794 and Safavid (right) (1501-1736) eras; (Source: Shiraz Municipality).

5.7.5 Socio-cultural findings

Analysis of information about socio-economic activities shows how much residents desire to renovate and revitalize their houses and their neighbourhoods. It also identified a lack of social activity and public open spaces. Furthermore, it identified another two different important factors, which concern the working-class population areas and the length of time that residents stay in their houses. These maps, shown in Figure 5.60, indicate that the areas with the maximum rates of immigration house residents who are more likely to be proactive in renovation of homes and are more likely to stay in the historic core.

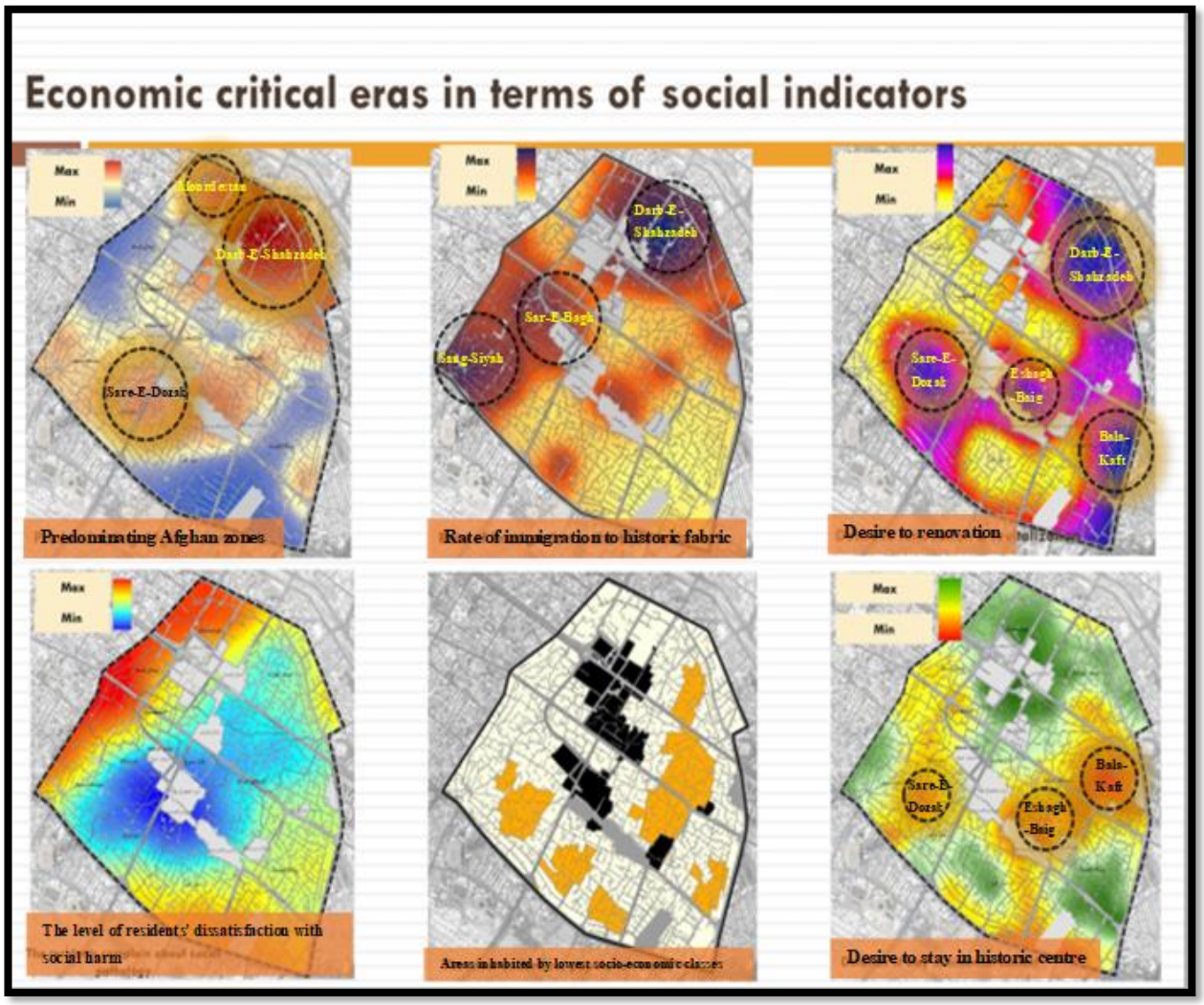

Figure 5. 60 Economically critical areas in Shiraz's historic fabric; (Source: map generated by the author, using Shiraz Municipality GIS system).

The social information collected is important to know how one can attract local residents to cooperate with government bodies in order to rehabilitate historic neighbourhoods and improve the urban law and regulations particularly for historic areas to make them useful for investors, planners and local residents. These maps, presented in Figure 5.61, show that there is some correlation between the areas with the highest rates of young population and the maximum rates of population density, housing units and people living per unit. This shows that young people are living in densely populated areas. The maps also show that the areas with the lowest literacy rates correspond to the areas with the lowest population density. This may mean that those with lower levels of education, lack support from neighbours and have to travel further to find employment opportunities.

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Figure 5. 61 Socio-Cultural indicators in Shiraz's historic fabric; (Source: Shiraz Municipality).

5.7.6 Physical form findings

From map surveys and analysis of the information regarding traffic patterns collected in fieldwork, it is apparent that Shiraz's historic zone (known as District No. 8), has good connections with the surrounding modern districts. The findings of these investigations are presented in Figures 5.62 which show the following issues:

1. Shiraz historic fabric is located at the intersection of major intercity route ways
2. The lack of peripheral roads, meaning that traffic from main arterial roads has to travel through the centre of Shiraz historic core, creating high traffic flow
3. The insufficiency of current ring roads and location of planned ring roads
4. The inadequacy of the structure of public transport in Shiraz historic core

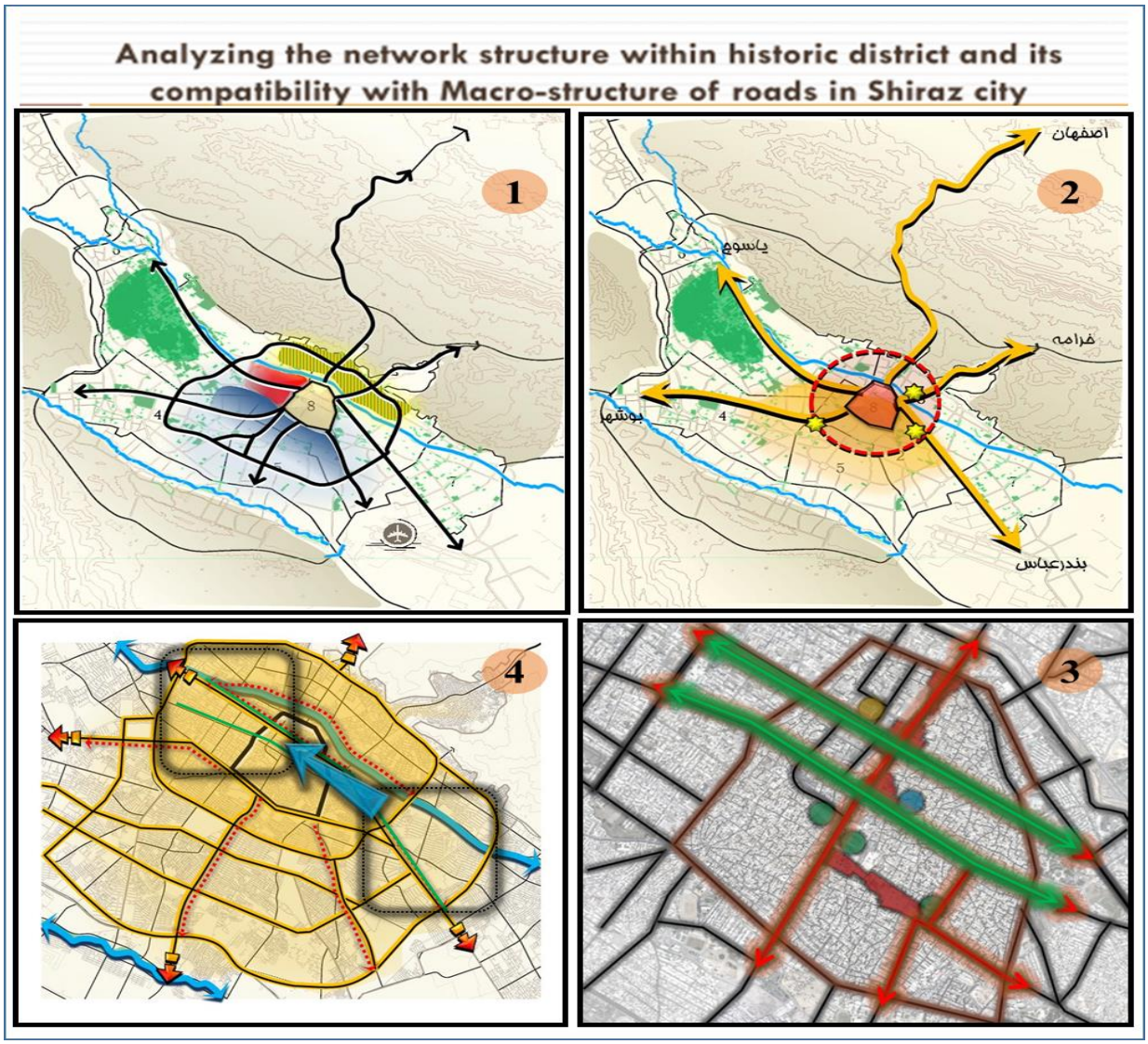

Figure 5. 62 Analysis of the network structure in Shiraz city; (Source: Author).

According to the physical form section of this chapter, streets and passages play an important role in shaping Iranian cities, including Shiraz historic core. The analysis of passages in Shiraz historic fabric shows the location of old passages and how many have disappeared. Figure 5.63 compares the historic location of passages to the current network of passages and shows the resulting loss of accessibility.

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Figure 5. 63 Comparison of the structure of the existing road network, in old structural passages in Zandiyeh (1751-1794), and Qajar eras (1794-1925) within Shiraz's historic fabric; (Source: Author based on Shiraz Municipality).

Consequently, data was collected during field study and analysed regarding the connectivity, permeability, legibility and public transport within Shiraz's historic fabric. These findings help this research to identify which approaches are likely to prove more effective in the rehabilitation and improvement of social services within Shiraz's historic fabric. These findings are presented in Figure 5.65 which shows that there are many areas in the historic fabric that are inaccessible by car and not in close proximity to public transport routes. Therefore, a rehabilitation strategy needs to address transportation issues in order to increase accessibility in the historic core.

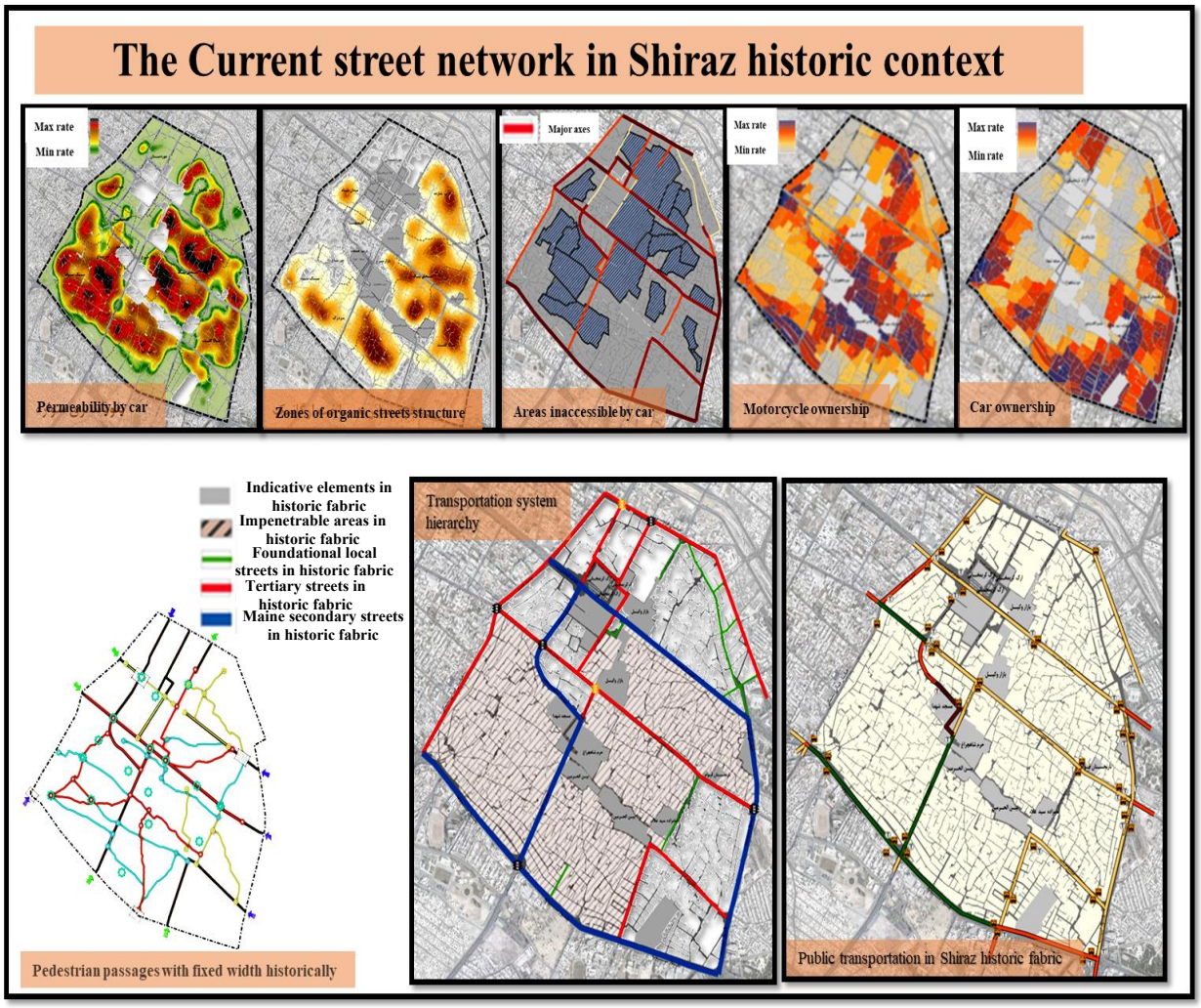

Figure 5. 64 The current street networks in Shiraz's historic fabric; (Source: map generated by the author, using Shiraz Municipality GIS system).

As mentioned above, streets play an important role in shaping Shiraz historic core by connecting different urban components such as Bazaar, Mosques, citadel etc. with residential areas. They can be categorised in three groups: foundational local streets, tertiary streets and main secondary streets (Figure 5.64).

The streets in Shiraz historic fabric also play a role as a place for urban activities such as socio-economic and religious activities. They connect residential areas and other civil service spaces within the historic fabric. Figure 5.65 presents the analysis of the location of these streets and urban activities with regard to residential areas and rehabilitation plans presented by Shiraz Municipality master plan. This diagram shows that the rehabilitation zone proposed by Shiraz Municipality master plan covers the main area used for socio-cultural, work and religious activities, as well as part of the residential zones. This analysis is important in order to identify how much this rehabilitation zone can meet the needs of residents and its effectivity in rehabilitating Shiraz historic core.

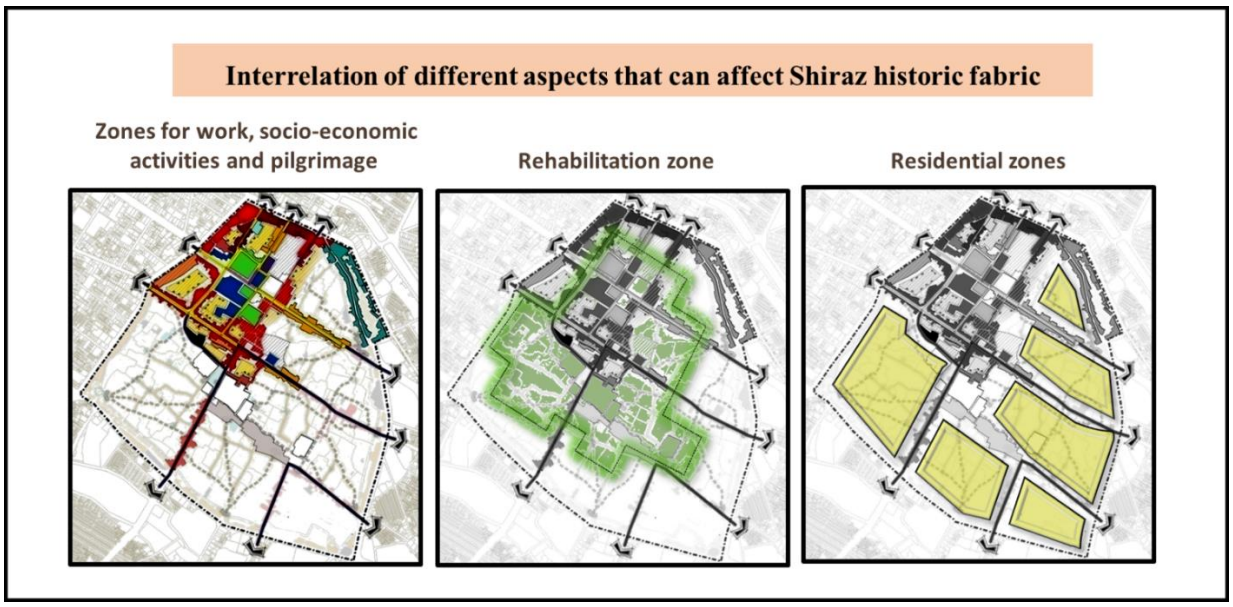

Figure 5. 65 Analysis of Interrelation of different aspects that can affect Shiraz historic fabric; (Source: map generated by the author, using Shiraz Municipality data).

5.7.7 Analysis of different historical layers in relation to the conceptual framework

Based on the above explanation, this part will present the results of analysis of different layers of factors that could influence and affect rehabilitation and identify different aspects that could help the rehabilitation of Shiraz's historic fabric. In order to achieve this, this research analysed the quality of social environment and population density, based on Municipality census data and GIS analysis maps. Combining these two factors showed the parts of Shiraz historic core that both lack urban quality and experience socio-demographical issues. This is important for this research in order to identify the areas that have highest priority for rehabilitation. Other important analytical layers are quality of houses and house structures and quality of land and urban structure. For this analysis, this research used the methods explained above to identify the location of issues within Shiraz historic fabric. The results are presented as GIS analysis maps. Combining these two layers shows the quality of land and houses that are important in terms of economy, social culture and livelihood of residents in relation to rehabilitation Shiraz historic fabric. Figure 5.66 presents the analytical layers in Shiraz historic core. It clearly shows that the areas with the maximum problems in socio-demographic terms lie in the north-east and centre of the historic core, while the areas with the lowest quality land and houses are found in the centre and south of the historic core.

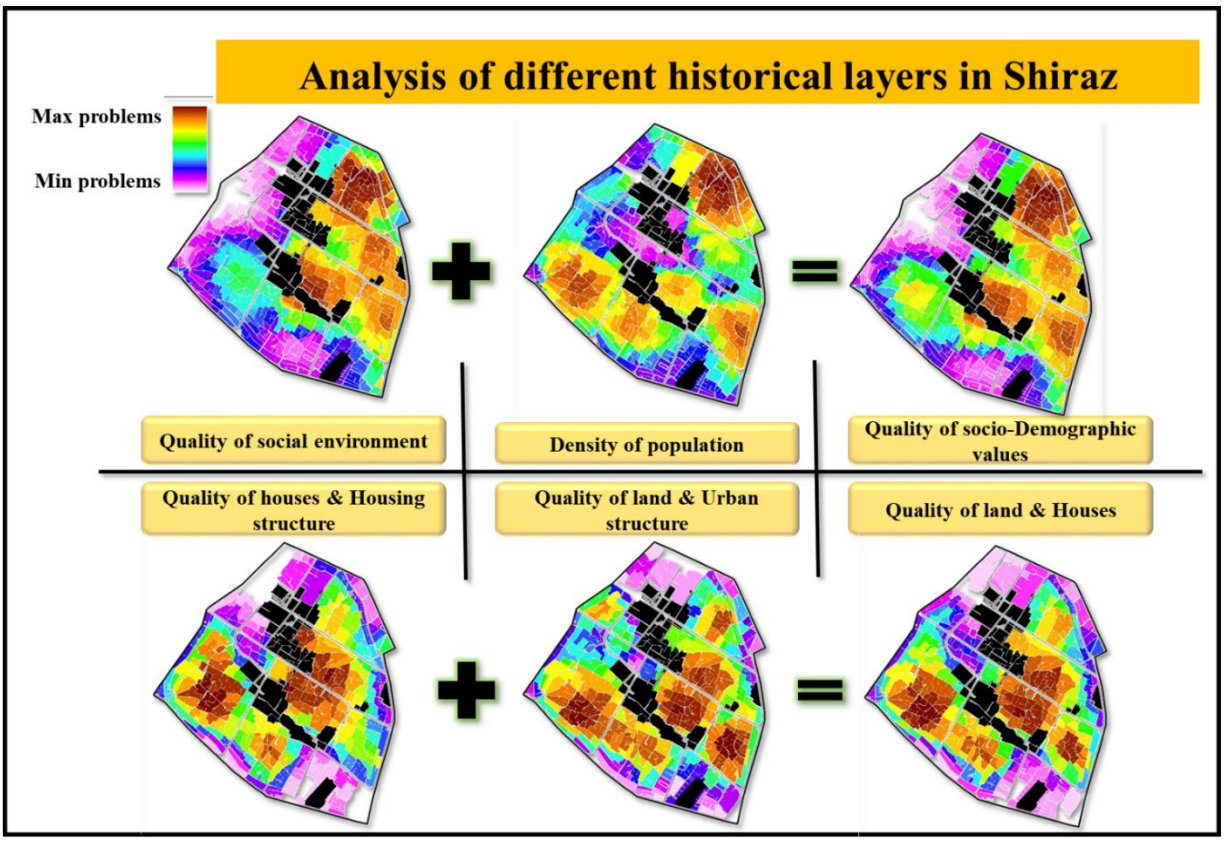

Figure 5. 66 Analysing different historical layers in Shiraz historic fabric; (Source: map generated by the author, using Shiraz Municipality GIS system).

In addition to identifying the analysis of different historical layers and the importance of the role of streets in shaping Shiraz historic fabric, it was necessary to analyse network communication in Shiraz historic core to identify how the street network works in different historical layers and expands through Shiraz historic fabric. These are shown in Figure 5.67.

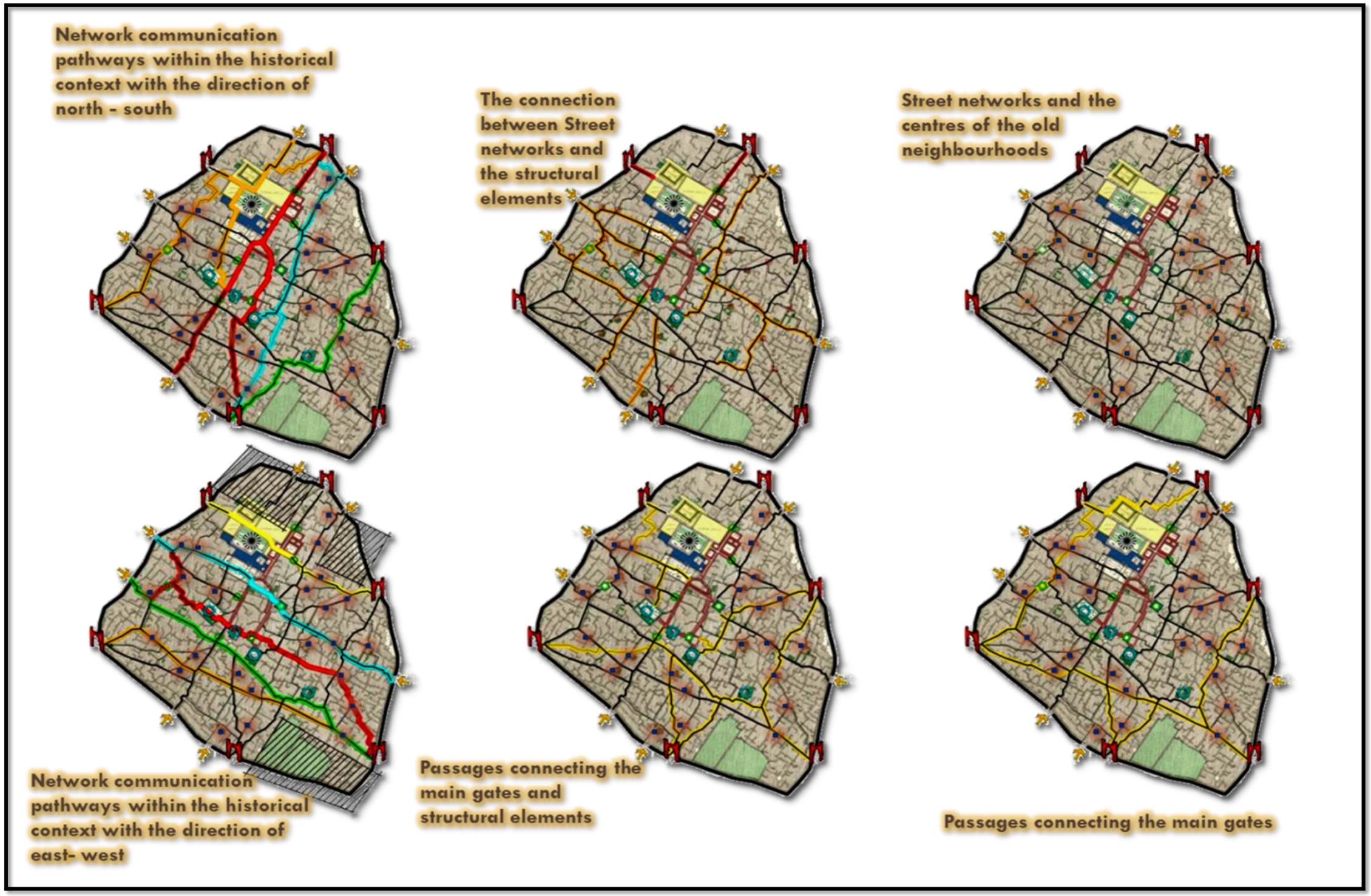

Figure 5. 67 Examination of the function of historical passages in the historical context of Shiraz; (Source: map generated by the author, using Shiraz Municipality data).

5.8 The selection of sub-case studies

Section 5.7.3 of this chapter identified which parts of Shiraz historic fabric have severe problems based on the five key elements presented in the integrated conceptual framework. Also, based on objective 4 of this research, it is necessary to focus in more depth on rehabilitation at micro-scale. In order to achieve that goal, this research needed further analysis to identify the most problematic areas in terms of urban design perspective, to show the connectivity, legibility and permeability within Shiraz historic core. Therefore, as stated in section 4.10.2, (methodology chapter), this research conducted in-depth analysis using Space Syntax analysis platform presented by UCL university (Figure 5.68). The results show that there are some areas that lack connectivity, legibility and permeability. However, identifying those areas was not sufficient to select sub-case studies without attention to the findings based of analysis of the five key elements.

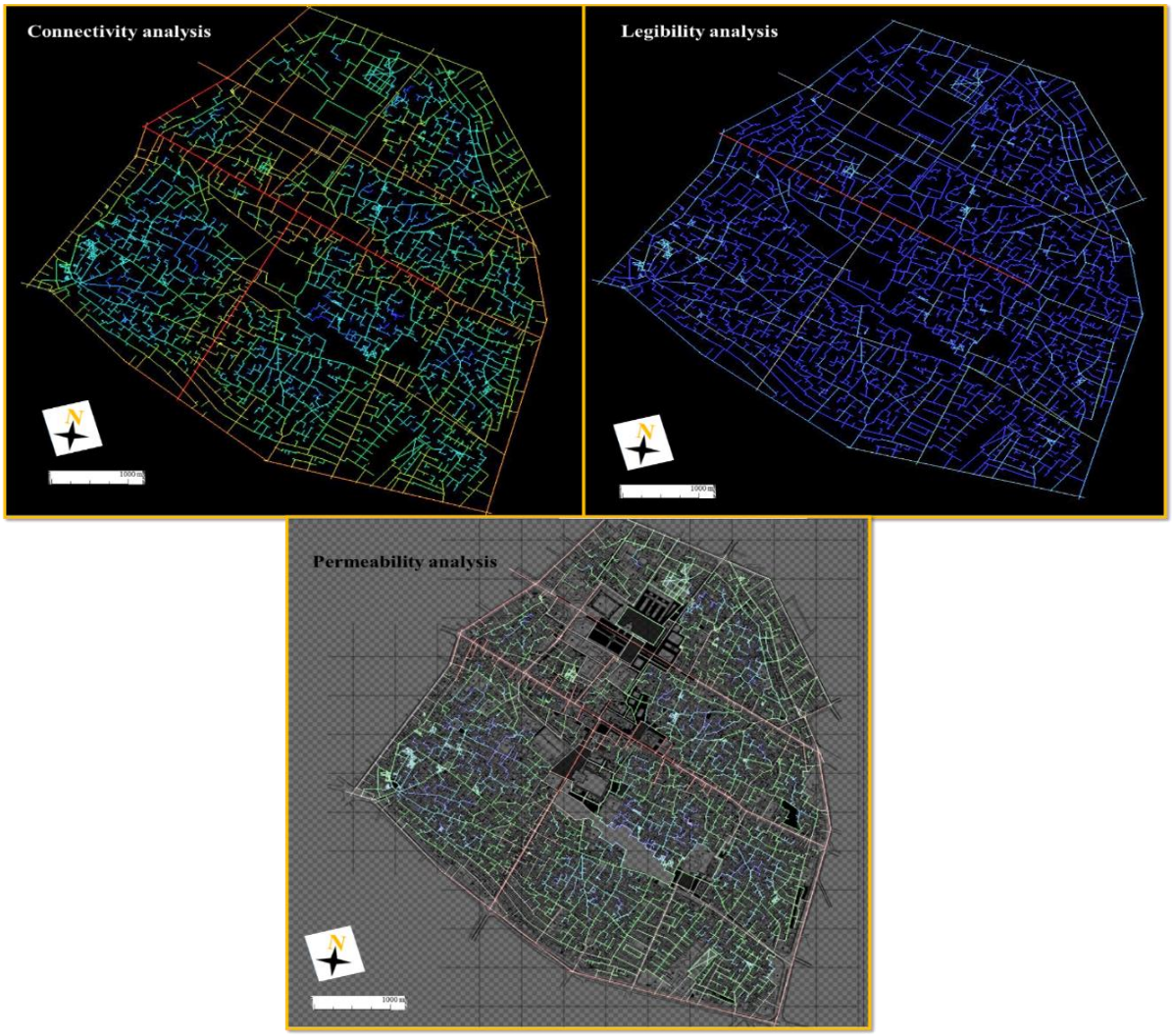

Figure 5. 68 Space Syntax analysis of Shiraz historical fabric; (Source: map generated by the author, using UCL University platform).

Therefore, criteria have been applied to ensure that the cases are reasonably representative of these three approaches selected for the investigation, which are as follows:

- These cases should be representative in terms of having potential for improvement and changes in any historical layers in relation to the five key elements of rehabilitation.
- The study areas should be comparable in terms of size and type, historical characteristics, socio-demographical factors, socio-economic problems and physical issues
- The availability of information and access to resources and key stakeholders.

Hence, two areas were selected as sub-case studies for collecting and analysing data to identify most existing problems and lack of rehabilitation within Shiraz's historic context. These two areas contain three historic neighbourhoods (according to Shiraz Municipality master plan two of these neighbourhoods merged). These are:

- (A) Lab-Abb Neighbourhood
- (B) Bazar Morgh Neighbourhood + Es-hagh-Baig Neighbourhood

Figure 5.69 presents the location of the areas selected as sub-case studies.

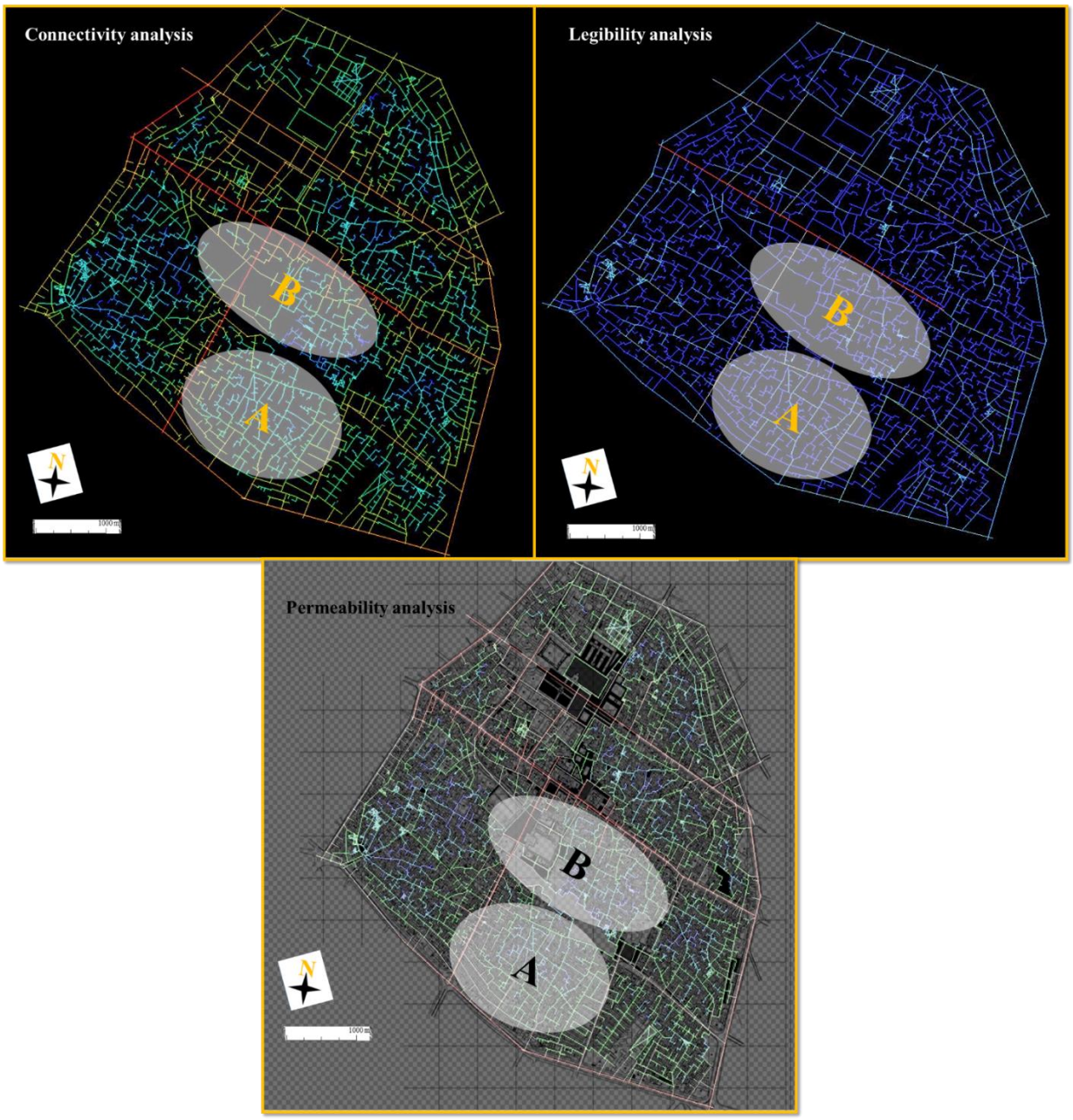

Figure 5. 69 Space Syntax analysis of Shiraz historical fabric; (Source: map generated by the author, using UCL University platform).

First, Lab-Abb neighbourhood, which is located in the south of Shiraz's old context, is connected to four districts. This neighbourhood is the combination of two small neighbourhoods from the Zand dynasty. There are several ancient schools devoted to religious teaching and sciences. However, the main characteristic of this neighbourhood is residential, although in the south this neighbourhood also has important commercial and religious elements. Moreover, they play a vital role in terms of rehabilitating and improving urban areas in this neighbourhood. According to the zoning of Shiraz's historic fabric by Shiraz Municipality this neighbourhood is known as District 11.

Second, Bazaar-Morgh neighbourhood and Es-hagh-Baig Neighbourhood are located in a central part of the historic context of Shiraz and have special characteristics of an economic and religious nature. These neighbourhoods have important urban facilities such as the bazaar, grand mosque and residential areas. Also, these neighbourhoods are connected to the main bazaar and seven neighbourhoods, which will give the opportunity to access the information for this research for rehabilitation. According to the zoning of Shiraz's historic fabric by Shiraz Municipality these neighbourhoods are known as Districts 1 and 8.

As a result, these neighbourhoods were specially selected for fulfilling the main goal of this research. Choosing these neighbourhoods will help this research to identify better the key factors which will affect historic urban areas with regard to improving the livelihood of residents and quality of life within the neighbourhoods in order to improve the rehabilitation process and urban design techniques. The micro-level analysis of these two sub-case studies will feature in the following chapters.

Conclusion

Based on objective 4 of this research, this chapter used the integrated conceptual framework in order to answer two research questions:

- *"How do religion, politics and economics affect the urban form at macro level?*
- *"How can a rehabilitation approach improve both the socio-cultural environment and physical form at macro level?"*

In order to answer these questions, this chapter used ethnographic analysis and interviews with key actors in Shiraz Municipality, the Ministry of Roads and Housing branch in Shiraz, the Cultural Heritage, Handicrafts and Tourism Organization of Iran and Pardaraz Consultants. Since these factors overlap, the outcome of the analysis for both questions can be summarised in the following propositions:

- Religious buildings shaped the urban form by connecting the bazaar, citadel and residential areas to itself.
- Historic cities in Iran, including Shiraz, have experienced modernisation throughout their history.
- It is only the most recent modernisation which has broken tradition.
- Previous experiences of modernisation have been organic and centred upon significant religious, political, economic and socio-cultural artefacts.
- Recent modernisation plans have prioritised economic growth without respect for socio-cultural and religious heritage.
- World Heritage Status is based upon Western cultural values and do not respect Islamic culture, where privacy is a key aspect.
- The desire for World Heritage Status has promoted policies which can be incompatible with conservation.
- Policy makers are divided between policies which prioritise heritage and conservation and those which prioritise economic growth.

Therefore, it can be concluded that recent modernisation efforts have triggered a downward cycle of stagnation and decline. This has been created by the emigration of significant numbers from some historically well-established communities. They have been replaced by new waves of immigrants. The new arrivals have lower levels of educational attainment and little desire for engagement in civic affairs and community activities. Rental values and property values have all declined as a result. This prompts the cycle to continue. More members of the long-established communities relocate, resulting in further reductions in rental values. This can result in a collapse in civic pride and social capital.

However, for those involved in protecting historic structural and social capital, there remains a basis for optimism. The composition of the different communities varies in terms of the ratio of new migrants. Thus, the condition of the physical structures as well as the social capital varies greatly between neighbourhoods. The challenge, therefore, for policy makers, developers and conservationists, is to devise a rehabilitation approach which conforms to religious requirements, allows for economic growth, protects socio-cultural issues, supports political issues and preserves the historic urban form. At its core is a belief that effective rehabilitation must be built upon economic regeneration and that effective conservation provides the basis for such economic regeneration. Such a combination will allow for the creation of new social capital and civic pride. The chapter concluded with an evaluation of the fabric of the historic core.

Chapter six: Lab-Abb Neighbourhood Sub-case Study One micro analysis

Introduction

The reader will recall that the aim of this research is 'to develop an urban design method to establish new principles for rehabilitation of historic cities in Iran'. Chapter 3 developed the integrated conceptual framework which will be used to evaluate the key characteristics of the micro-scale neighbourhood in this chapter. The aim of this chapter is to evaluate the key characteristics on a micro-scale, in order to propose recommendations for rehabilitating the historic city of Shiraz.

This chapter, and the following chapter, use the factors described in Chapter 3 which shape Iranian cities, alongside the integrated conceptual framework to analyse the strengths, weaknesses, opportunities and threats on the quality of urban areas. While Chapter 5 examined Shiraz historic core as a whole, this chapter will now focus on the first of two sub-case study neighbourhoods.

The first case study, Lab-Abb neighbourhood, a residential historic district in the south of Shiraz's historic zone with a population of 9791 (Figure 6.1), was chosen as a result of the space syntax analysis presented in Chapter 5, section 5.9, which identified that this neighbourhood is one of two areas which have lower levels of permeability, connectivity and legibility than the rest of the historic core, therefore would be a suitable candidate for a rehabilitation scheme.

As stated in Chapter 4, this chapter will use qualitative and quantitative methods for the collection and analysis of the information within sub-case studies based on primary data collected during the fieldwork period. Table 6.1 demonstrates the structure of this chapter, the methods of analysis and the data sources in relation to rehabilitation of Shiraz's historic neighbourhoods.

<table>
<tr><th colspan="5">Analysis topic</th><th>Methods and techniques of analysis</th><th>Sources</th></tr>
<tr><td rowspan="10">Analysis of the effect of the key rehabilitation factors in the formation of the neighbourhood</td><td colspan="4">Locational Analysis</td><td>Documentary Ref</td><td>Maps</td></tr>
<tr><td colspan="4">Historical analysis</td><td>Documentary Ref</td><td>Data from books, Maps,</td></tr>
<tr><td colspan="4">Effect of religion on physical form</td><td rowspan="4">Government reports, Questionnaires, Survey, Interviews , Livelihood theory</td><td rowspan="4">Table/ Graph/ Bar Chart/ Documents/ Law/ Regulations</td></tr>
<tr><td colspan="4">Effect of politics on physical form</td></tr>
<tr><td colspan="4">Effect of economics on physical form</td></tr>
<tr><td colspan="4">Effect of socio-culture on physical form</td></tr>
<tr><td rowspan="5">Physical form</td><td rowspan="5">Morphological analysis & Urban Design analysis</td><td colspan="2">Land use pattern</td><td>Morphological analysis</td><td rowspan="5">Maps/ Photographs/ Drawings/ Reports/ Measurements</td></tr>
<tr><td rowspan="2">Street pattern and open spaces/ Block and plot pattern</td><td>Layout (Passage analysis)/ Permeability, legibility, Variety, Resilience</td><td>Figures/Ground analysis Linkage theory/ Traffic & Transportation survey</td></tr>
<tr><td>Transport infrastructure</td><td>Lynch analysis</td></tr>
<tr><td>Building structure Building Details</td><td>Architectural evaluation</td><td>Site survey Interview reports</td></tr>
</table>

Table 6. 1 Data analysis structure and data sources.

Sub-case study one, which is historically known as Lab-Abb neighbourhood, and based on municipality division, known as zone 11. The location of this neighbourhood is in the south of Shiraz historic fabric and is connected to zone 9 (Bala-Kaft neighbourhood) and zone 10 (Sang-Siyah); to the north it is connected to sub-case study two, which is the result of merging of zones 1 and 8 (Bazaar-Morgh and Eshagh-Baig neighbourhoods). Figure 6.1 shows the location of this zone within Shiraz historic fabric.

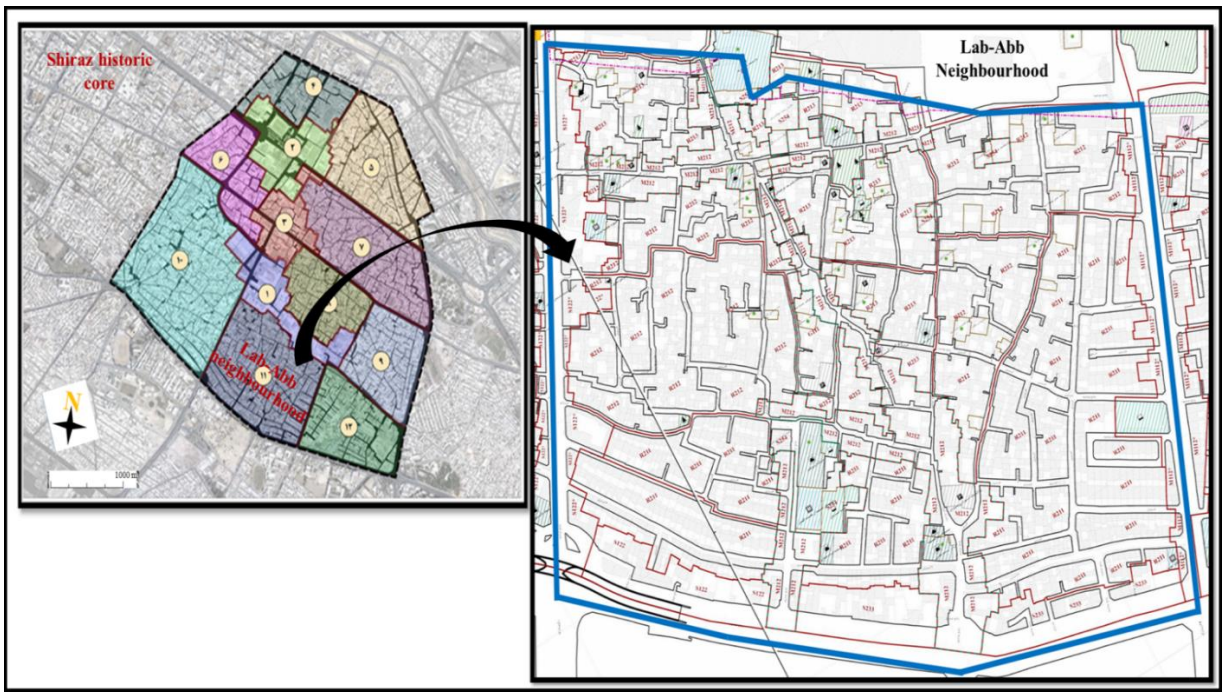

Figure 6. 1 Sub-case study one, the boundary of Lab-Abb neighbourhood; (Source: Author based on Shiraz Municipality data).

The neighbourhood will be analysed by investigating the following research questions:

"How do religion, politics and economics affect the urban form at (macro and) micro level?"

"How can a rehabilitation approach improve both the socio-cultural environment and physical form at micro level?"

Consequently, this chapter, uses the conceptual framework to identify the correlation between key factors that can influence the rehabilitation process in Shiraz's historic fabric. Figure 6.2 shows these connections and their importance.

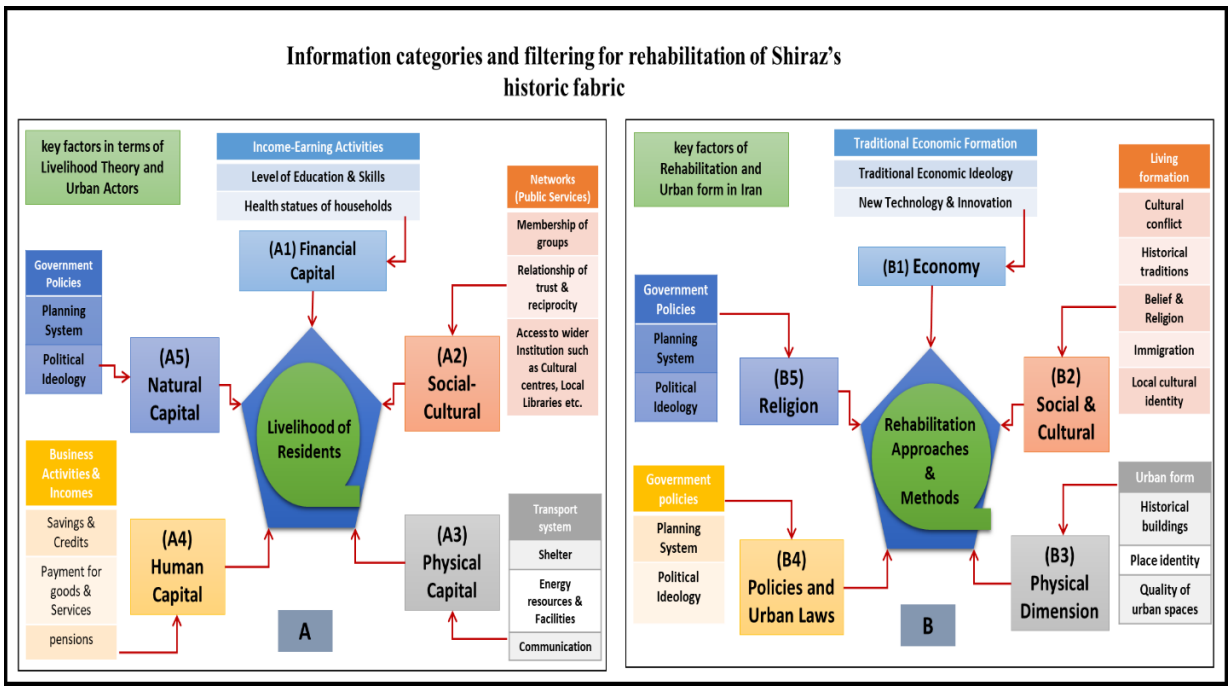

Figure 6.2 Information categories and filtering by two main theories based on integrated conceptual framework for rehabilitation of Shiraz's historic fabric.

Since this sub-case study is a highly residential area, some of the five aspects of rehabilitation will be more important in this sub-case study than the second one, which has a large commercial area and many religious buildings. Therefore, although all five key aspects of rehabilitation are discussed in both this chapter and the following chapter, socio-culture, economics and physical form play a greater role in this neighbourhood and are discussed in greater depth in this chapter. Consequently, data collected in fieldwork for sub-case study one is as shown in Table 6.2.

Physical factors	Socio-Cultural factors	Economic factors
Morphological and urban formation	Immigration	Economic pattern in historic neighbourhood
Urban organic structure	Education & Occupation	Business activities & Livelihood
Urban design qualities (Permeability, Legibility, Variety and Resilience)	Residents age range	Land & Property values
Security and urban spaces	Duration of living in the neighbourhood	Income, savings, credits and living costs
Privacy and urban spaces	Quality of urban services	Cost of renewing, repairing and improving houses and urban areas
Climate and urban pattern	Security of urban spaces	Loans and bank interest rate
Local materials and houses	Participation in the rehabilitation program in historic neighbourhoods	
Comfort		

Table 6.2 Relevant categories from micro analysis section in Chapter Six for collecting and analysing relevant data.

As well as SWOB and GIS analysis, the results of the analysis of each factor are subjected to the RADAR analysis graphs, presented at the end of chapters 6 and 7, concerned with the analysis of each sub-case study to show which key factors need further attention for rehabilitation of the sub-case study neighbourhoods. Figure 6.3 shows an example of data analysis and the correlation between the key factors for the rehabilitation of Shiraz's historic neighbourhoods.

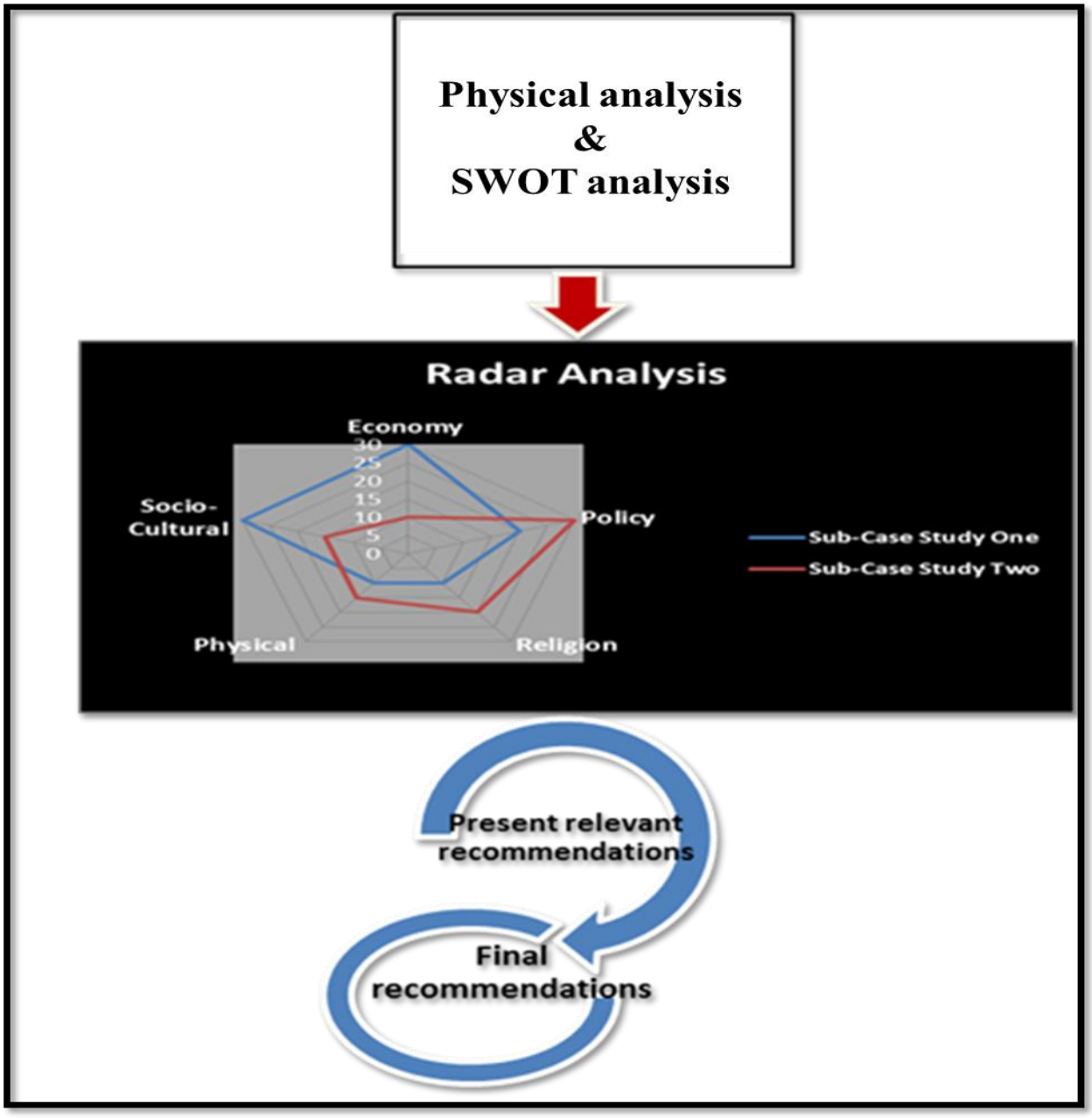

Figure 6.3 The structure of data analysis and correlation between the key factors.

Therefore, in the following sections, the analysis of sub-case study 1, based on Table 6.1 and Figure 6.3, will be presented. Similar analysis of sub-case study 2 is presented in Chapter 7.

6.1 Historical Background of Lab-Abb neighbourhood

Interviews with a local community representative revealed that in the past this neighbourhood had several private and public gardens. During the Zand period (1751-1794), analysis of old Shiraz maps (Appendix 6) showed that many houses had smaller gardens. However, these gardens were destroyed due to water shortage and overpopulation. Thus, in the Zand period, the city started to shrink in area, and another neighbourhood, Sarajan, merged with this neighbourhood.

Due to the large number of subterranean water channels, the neighbourhood was named 'water's edge' (Lab-Abb). This neighbourhood from the north relates to Eshagh-Baig neighbourhood and Bazaar-Morgh; with Sar-Dozak neighbourhood from the west; with Bala-Kafd neighbourhood to the east and from the south to Shah-Daee-Allah main gate (Figure 6.4). Buildings famous for their architectural and cultural characteristics are as follows:

- Shah-Daee-Allah main gate
- Mansuriyeh school
- Mansuriyeh bazaar
- Sayied-Sharif Jorjani's tomb

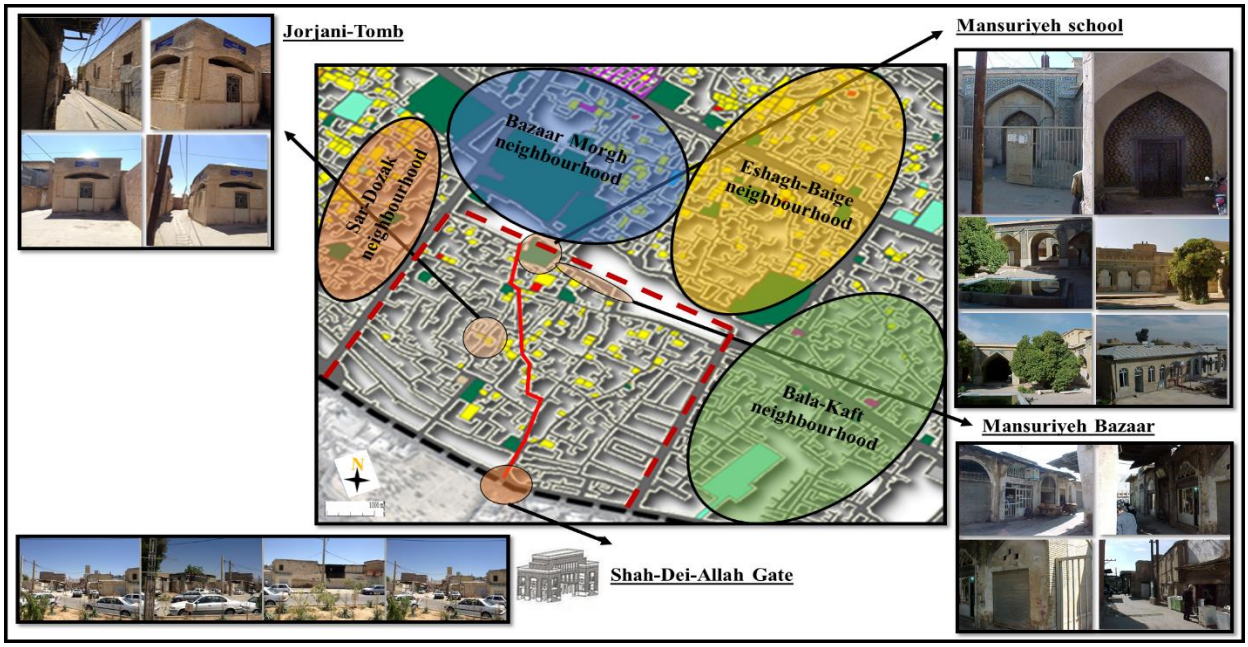

Figure 6. 4 The famous buildings in terms of architectural characteristics in Lab-Abb neighbourhood.

Historical documents (Fasāʾī, 1972) and memorial stones concerning the formation of the neighbourhood over different historical eras were analysed. It also revealed that this neighbourhood has zones with distinct functions: residential, commercial, religious and governmental.

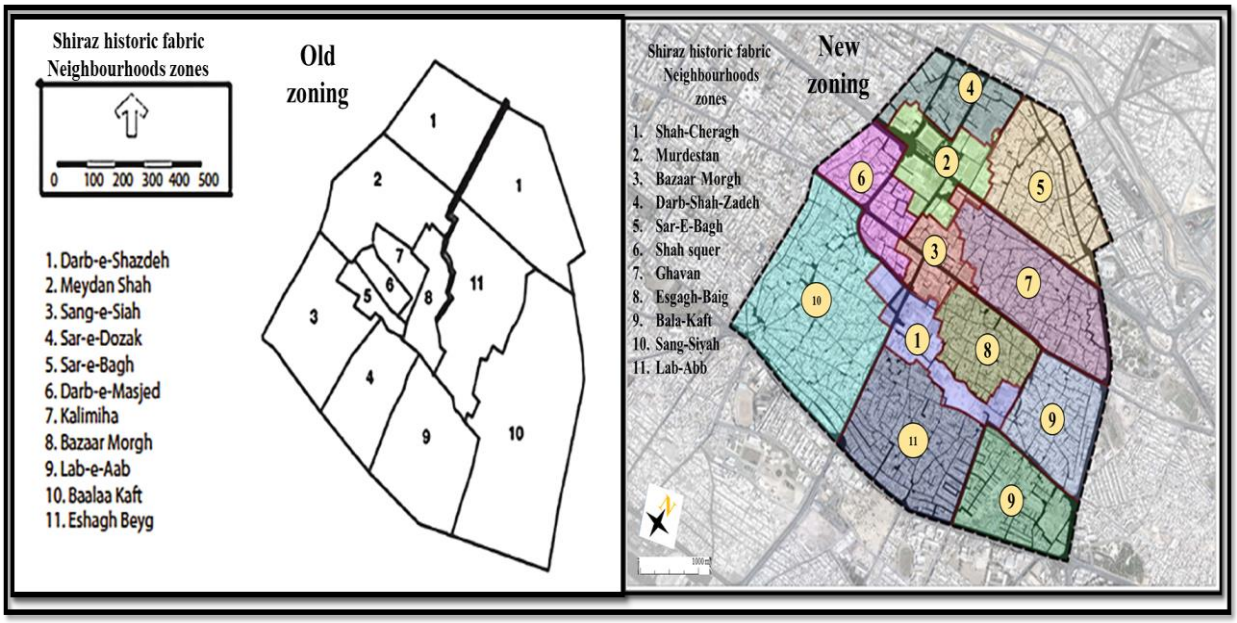

Figure 6. 5 The Neighbourhood Boundaries based on old zoning system and new zoning system in Shiraz historic fabric; (Source: Author based on Shiraz Municipality data).

According to municipality zoning, Lab-Abb neighbourhood is known as Zone 11 (Figure 6.5). Therefore, this research also uses this code to represent this neighbourhood. Lab-Abb neighbourhood will now be examined according to the five key elements of rehabilitation which were identified in Chapter Three, and according to the research questions identified earlier in this chapter.

6.2 Effect of Religion on the urban form of Lab-Abb neighbourhood

Fieldwork study identified that several mosques, religious schools, a gateway and gardens play an important role in connecting urban spaces and activities in this neighbourhood, that is, that the streets and passages were formed to connect these important religious buildings to other important elements of the historic fabric, such as bazaars and to the residential areas. These are:

- The Imam Ali Mosque and the Alamdar Mosque in the north
- The Mansooriyah school in the north
- The Shah-Daee-Allah Gateway in the south
- The Hakimiyan Garden in the east (Figure 6.6)

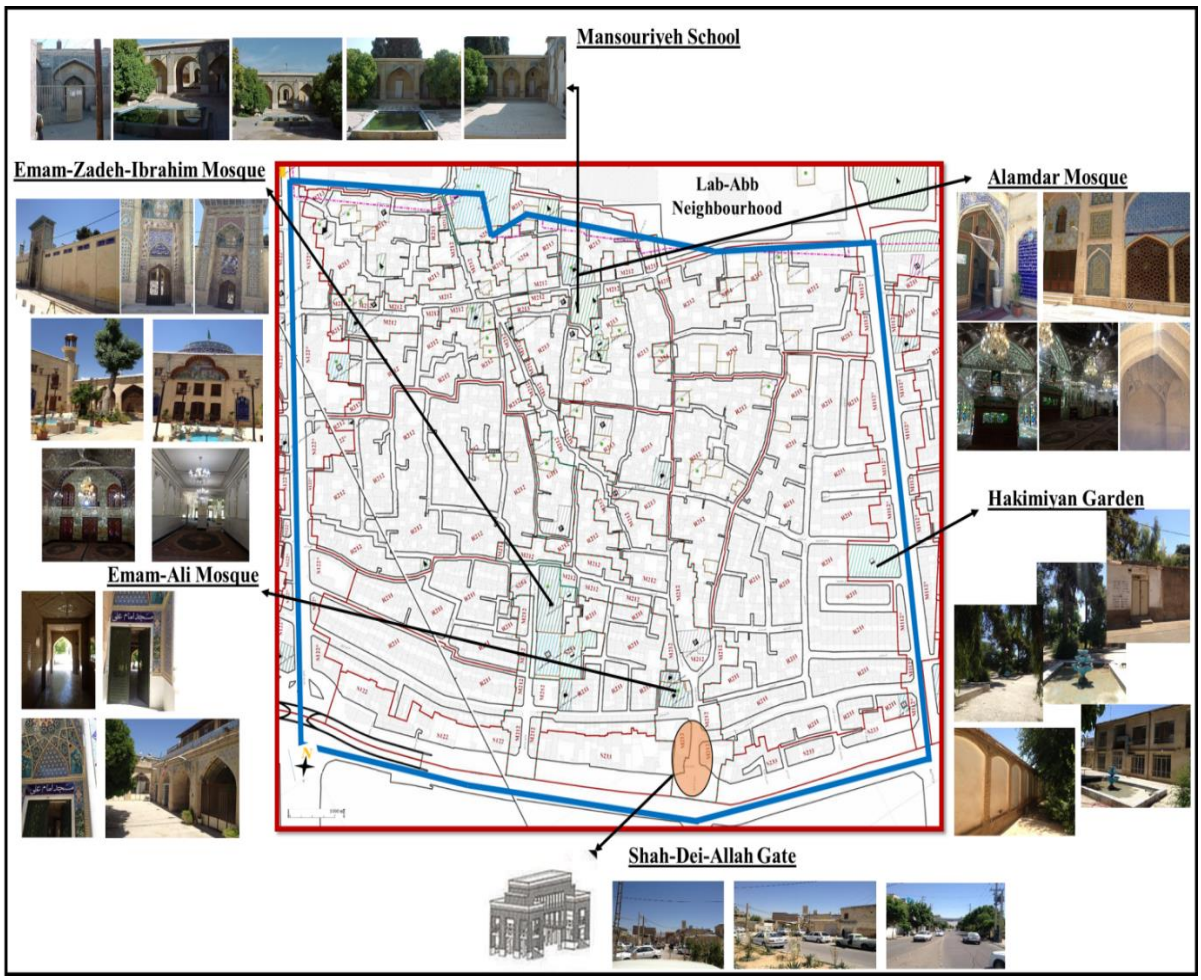

Figure 6. 6 The distribution of religious buildings in sub-case study one and their connections (Source: Author).

Figure 6.6 shows that the religious buildings in sub-case study one, are located along main axes of the neighbourhood and organic paths connect some of the religious elements, such as the path from Emam-Ali mosque ending close to Mansouriyeh School.

Religious elements have also influenced the formation of passages. Indeed, the Atigh Grand Mosque of Shiraz is the only religious element whose history is not shorter than that of the passages. While these passages had previously been the axis for trade, today they act as commercial and pilgrimage axes.

The passages play a vital role in the movement system, especially pedestrian movement. However, analysis of the function of these routes and their role in offering access requires traffic analysis, which are dealt with in a related topic. (Figure 6.7)

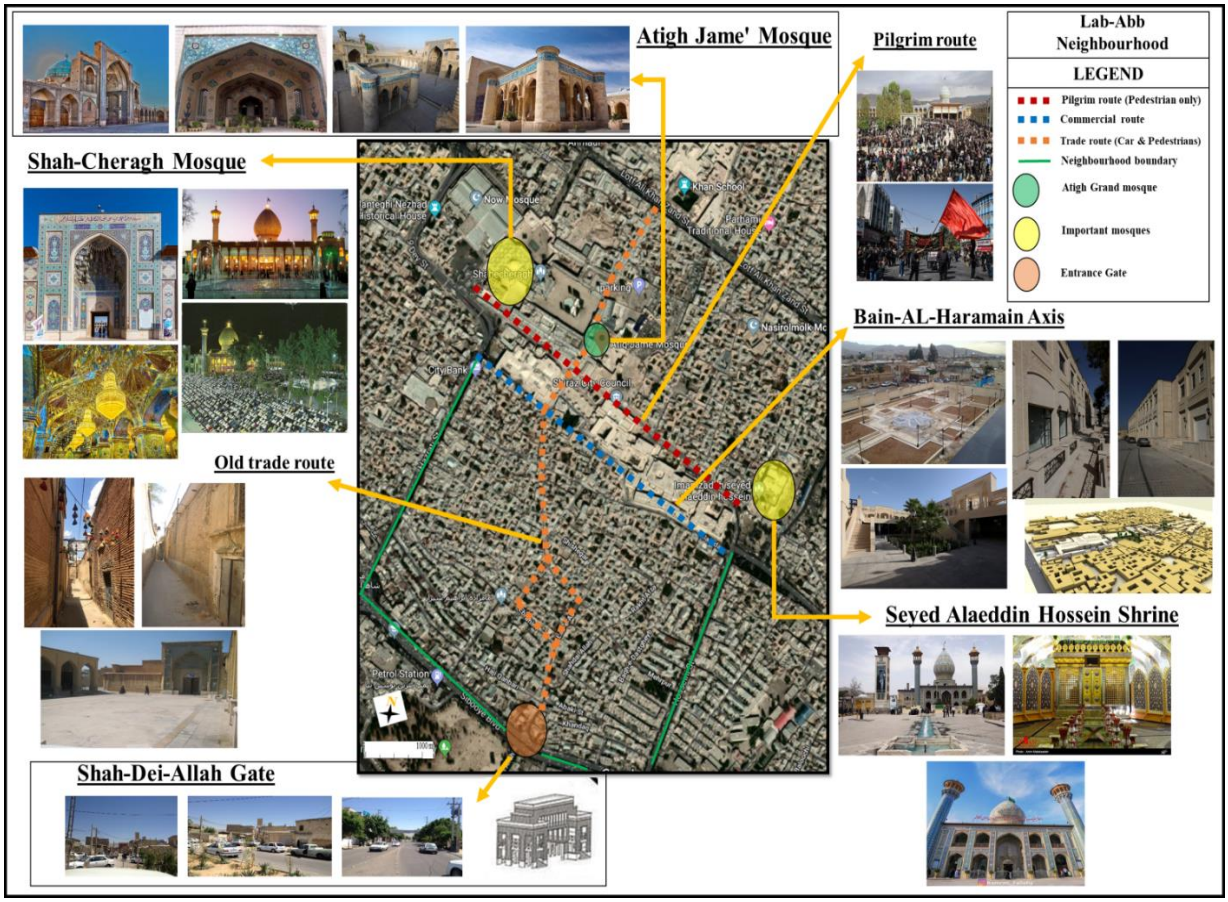

Figure 6. 7 The effect of religious elements on routeways in sub-case study one; (Source: Author).

6.2.1 Religious status among residents in Lab-Abb Neighbourhood

Tables 6.3 and 6.4 show that in sub-case study no.1, 100% of residents are Muslim: 83% are Shia and about 17% of Muslim inhabitants are Sunni. This composition represents the presence of the cultural plurality in Shiraz historic core.

Religion	Quantity	Percent
Shia	291	83.1
Sunni	59	16.9
Total	**350**	**100**

Table 6.3 Religious composition of population in Shiraz's historical cultural zone; (Source: Author; Household socio-economic survey, 2010)

Religion	Ethnicity						Total
	Fars	Turk	Arab	Lor	Afghani	Others	
Shia	0.3%	5.4%	3.2%	0.9%	0.6%	72.8%	83.1%
Sunni	0.3%	16.3%	-	-	-	0.3%	16.9%
Total	**73%**	**0.60%**	**0.9%**	**3.20%**	**21.80%**	**0.60%**	**100%**

Table 6.4 Religious composition of residents in Shiraz's historical cultural zone; (Source: Author; Household socio-economic survey, 2015)

Since, as shown in the above tables, 100% of residents consider themselves Muslim, a rehabilitation strategy will be strongly influenced by religious factors. As described in the conceptual framework, residents' beliefs have a strong impact upon many different aspects of their lifestyle, interaction with surrounding areas, socio-cultural interaction and economic measures. It is therefore evident that Islam plays an important role in this neighbourhood, due to the presence of three historic mosques, and other buildings with religious associations, such as public baths and 100% of the residents identify as being Muslim (mostly Shia, with a significant minority being Sunni). Therefore, a rehabilitation strategy needs to pay attention to the role of religion in this neighbourhood and needs to ensure that all residents have easy access to the mosques and open areas to gather for religious parades and festivals.

Since religion affects the policies in Iranian cities, according to the integrated conceptual framework, the next section will discuss the effect of politics on the formation of this neighbourhood.

6.3 Effect of Politics on the formation of Lab-Abb neighbourhood

In an interview (Appendix 1), the senior expert from the planning department in Shiraz Municipality stated that attention to the renovation and preservation of single buildings and monuments was needed. However, paying attention to individual entities causes further problems, and the preservation and renovation should be applied to the whole historic fabric. Therefore, it is necessary to review the regulations to find how these policies can be adapted for a new situation and for the needs of local residents and investors. Hence, the following section will present the different policies regarding rehabilitation in this neighbourhood.

According to Shiraz municipality report (2012), land uses in historic core are categorised in 4 main groups of which each has its own sub-category. These categories are based on characteristics such as residential, commercial, urban services, urban activities and services and green spaces. In this regard, each main category is recognised by codes. Table 6.5 shows the land use coding in Shiraz historic core, which is done on a plot-by-plot basis, as the streets are mixed-use.

Zoning in a large scale	One digit Coad	Maine zone	Two digits Coad	Zoning areas	Three digits Coad	Sub-zones
Residential (R)	R1	General Residential	R11	Residential with low density	R111	Residential with 2 storeys
			R12	Residential with moderate density	R121	Residential with 3 storeys
					R122	Residential with 4 storeys
			R13	Residential with high density	R131	Residential with 5 storeys
					R132	Residential with 6 storeys
	R2	Special Residential	R21	Residential in historic fabric	R211	Residential (Development & Protection)
					R212	Residential (Renovation; Improvement; Rehabilitation)
					R213	Residential (Restoration; Protection & changing the usage)
			R22	Residential in central historic fabric	R221	Special Residential with 4 storeys
					R222	Special Residential with 5 storeys
			R23	Special Residential in valuable tissue	R231	Valuable rural residential properties
			R24	Specially upscale residential	R241	Residential with 7-9 storeys
					R242	Residential with 10-12 storeys
			R25	Residential complexes	R251	Residential complexes with low density
					R252	Residential complexes with moderate density
					R253	Residential complexes with high density
					R254	Residential complexes extremely high density
					R255	

Zoning in a large scale	One digit Coad	Maine zone	Two digits Coad	Zoning areas	Three digits Coad	Sub-zones
Activities (S)	S2	Commercial centers - Administrative and Service, with the overcoming of Green & Open spaces	S23	Residential with low density Residential with moderate density	S231	Commercial centers - Administrative & Service with a predominance of Tourism (Metropolitan - City – Regional scales)
					S232	Commercial- Administrative & Services centers, with Cultural predominance
					S233	Commercial- Administrative & Services axes with cultural predominance
			S24	Public services zones	S241	Public service zones (Metropolitan - City – Regional scales)
					S242	Public service zones (Regional scales)
					S243	Public service zones (Neighbourhood scales)
					S244	Public Service Centres & Urban Facilities
					S244-F	Public Service Centres & Urban Facilities (storage and workshops for commercial spaces)
			S25	The axes and areas of tourism and cultural spheres	S251	Tourism & Cultural axes
					S252	Tourist - Cultural - Religious areas
					S253	Tourist & Historical areas
					S254	Areas of outstanding historic buildings and spaces
					S256	Cultural - Religious areas
	S3	Industrial-workshop	S31	Industry	S311	High-tech industries
			S32	Areas and axes of workshop spaces & Production spaces	S321	Manufacturing workshops
					S322	Workshop-manufacturing complexes

Zoning in a large scale	One digit Coad	Maine zone	Two digits Coad	Zoning areas	Three digits Coad	Sub-zones
Residential (R)	R1	General Residential	R11	Residential with low density	R111	Residential with 2 storeys
			R12	Residential with moderate density	R121	Residential with 3 storeys
					R122	Residential with 4 storeys
			R13	Residential with high density	R131	Residential with 5 storeys
					R132	Residential with 6 storeys
	R2	Special Residential	R21	Residential in historic fabric	R211	Residential (Development & Protection)
					R212	Residential (Renovation; Improvement; Rehabilitation)
					R213	Residential (Restoration; Protection & changing the usage)
			R22	Residential in central historic fabric	R221	Special Residential with 4 storeys
					R222	Special Residential with 5 storeys
			R23	Special Residential in valuable tissue	R231	Valuable rural residential properties
			R24	Specially upscale residential	R241	Residential with 7-9 storeys
					R242	Residential with 10-12 storeys
			R25	Residential complexes	R251	Residential complexes with low density
					R252	Residential complexes with moderate density
					R253	Residential complexes with high density
					R254	Residential complexes extremely high density
					R255	

Zoning in a large scale	One digit Coad	Maine zone	Two digits Coad	Zoning areas	Three digits Coad	Sub-zones
Mix-Use (M)	M1	Mix –use spaces (Commercial, Offices. Services & Residential) Special Residential	M11	Mix-Use Commercial-Office & Service axes, with Residential use	M111	Mix-Use Commercial-Office & Service axes, with Residential use (Metropolitan - City – Regional scales)
					M112	Mix-Use Commercial-Office & Service axes, with Residential use (Regional scales)
					M113	Mix-Use Commercial-Office & Service axes, with Residential use (Neighbourhood scales)
			M12	Mix-Use Commercial-Office & Service Areas, with Residential use	M121	Shared Commercial-Office & Service Areas, with Residential use (Metropolitan - City – Regional scales)
					M122	Mix-Use Commercial-Office & Service Areas, with Residential use (Regional scales)
					M123	Mix-Use Commercial-Office & Service Areas, with Residential use (Neighbourhood scales)
					M124	Special areas with Mix-Use Commercial-Office & Service with Residential use in accordance with a detailed urban design plan
			M13	Mix-Use Commercial-Office & Service Areas, with Residential use and overcoming the use of green spaces and open urban environments	M131	Mix-Use Commercial-Office & Service & Residential Areas with overcoming the use of green spaces and open urban environments
	M2	Mix –use spaces (Tourism & Cultural with Residential land use)	M21	Mix –use Axis & Areas (Residential, Cultural, Tourism& Recreational)	M211	Mix –use Axis & Areas (Cultural, Tourism & Recreational)
					M212	Mix –use Axis with Residential, Cultural, Tourism use (within historic streets)
	M3	Mix –use spaces (Workshop spaces & Production spaces & Residential areas)	M31	Specially upscale residential Residential complexes	M311	Mix-Use Workshop & Residential Axes
					M312	Mix-Use Workshop & Residential Areas

Table 6. 5 The land use coding used by Shiraz Municipality in sub-case study one; (Source: Author based on Shiraz municipality data).

These zoning codes are also used in Lab-Ab neighbourhood and show how the local government plans to improve these areas, according to the Shiraz historic centre detailed plan. This zoning is presented in Figure 6.8, which shows that the predominant land use of Lab-Abb neighbourhood is residential, as follows:

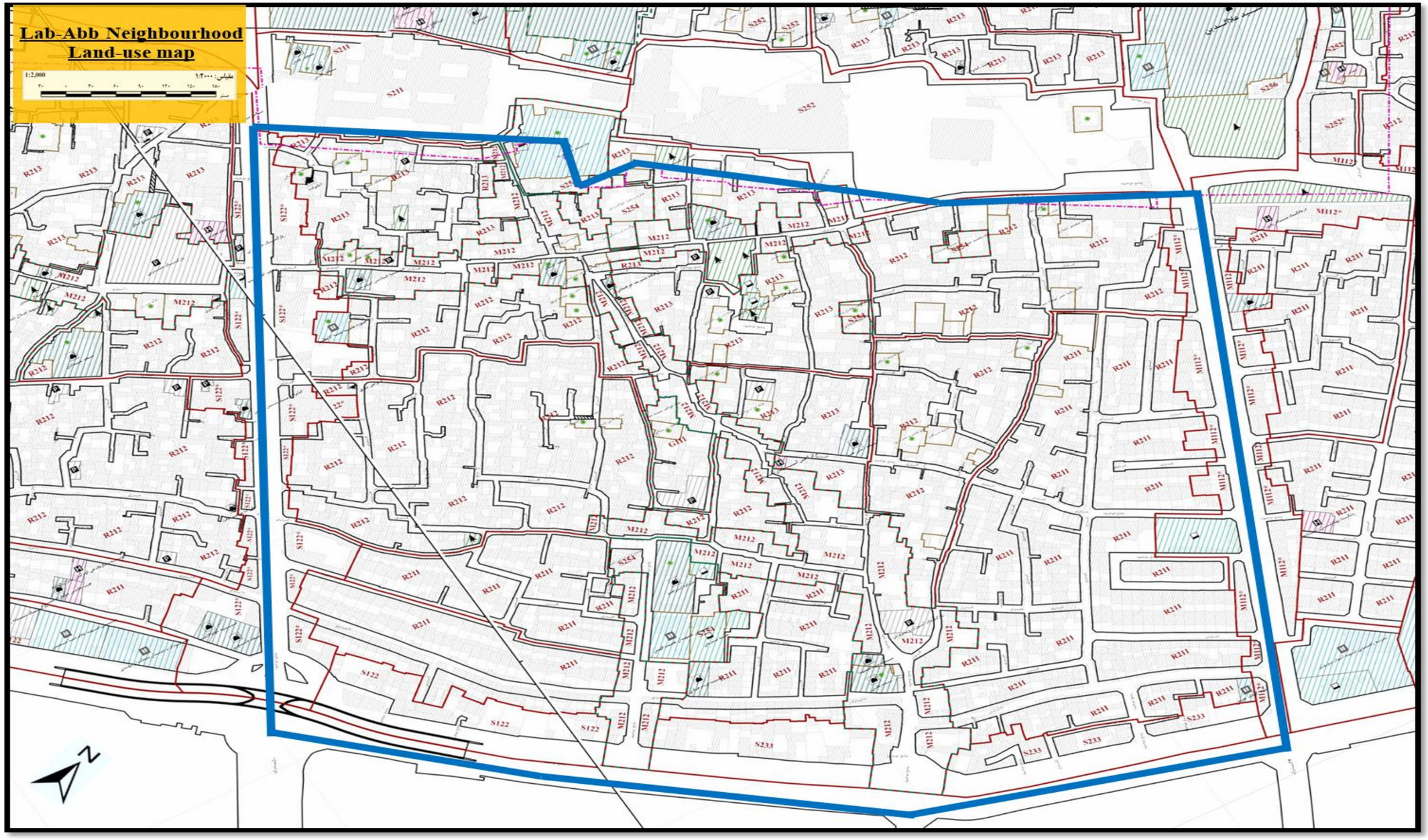

Figure 6. 8 Land-use zoning in Lab-Abb Neighbourhood (Source: Author based on Shiraz municipality data).

Furthermore, modern Iranian development law requires that streets have certain widths. The requirements are shown in Tables 6.6, 6.7 and Figure 6.9.

Open streets in dense fabric

Length of street	Minimum street width
Less than 20 m	3 m
Between 20-50 m	4 m
Between 50-150 m	5 m
150 m and above	6 m

Table 6. 6 Requirements of street width for different street lengths according to Iranian law; (Source: Author based on Shiraz municipality data).

Dead-end streets in dense fabric

Length of street	Minimum street width
Less than 50 m	3.5 m
Between 50-200 m	6 m
200 m and above	8 m

Table 6. 7 Requirements of street width for different street lengths according to Iranian law; (Source: Author based on Shiraz municipality data).

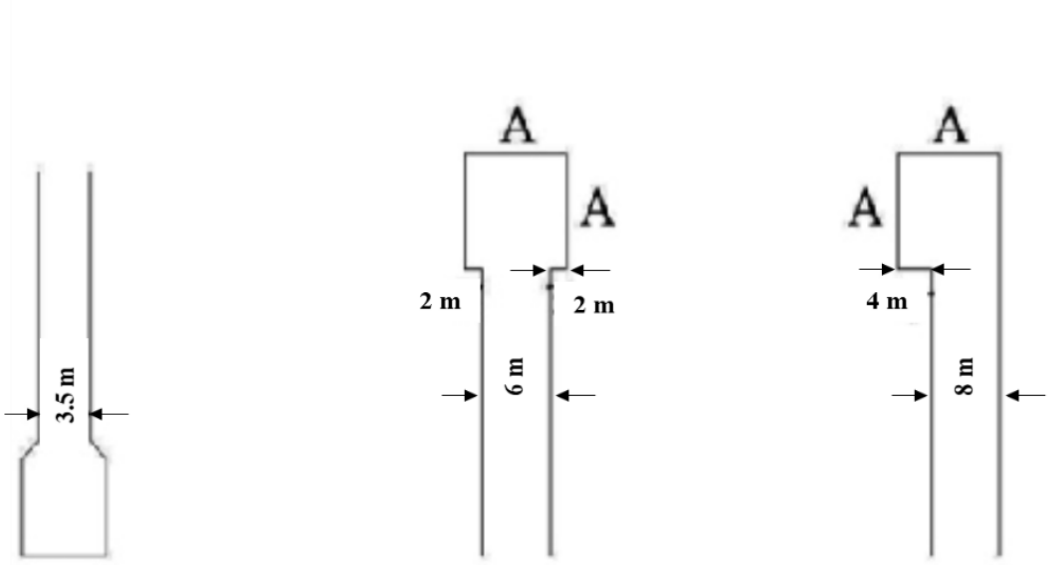

Figure 6. 9 Illustration of the required street widths under Iranian law (Source: Author based on Shiraz Municipality data).

Tables 6.6, 6.7 and Figure 6.9 show the laws concerning width of streets. In order to meet the width required by Islamic law, some of the streets in Lab-Abb require widening. Some examples of these streets are shown in Figure 6.8, where the red lines are drawn along the streets. Therefore, politics affects the urban form through in this way: Islamic policies have affected the width of passages and municipal policies have affected how rehabilitation has been carried out.

6.5 Socio-cultural elements in Lab-Abb neighbourhood

This section describes migration, ethnicity and social integration, as the main socio-cultural elements affecting this neighbourhood.

6.5.1 Analysis of migration status in Lab-Abb historic neighbourhood

Immigration is relevant because the movement of residents affects their relationship with the neighbourhood and their participation in rehabilitation of historic fabric. With increased participation from residents and collaboration between residents and the municipality, a greater degree of rehabilitation can be achieved.

The subject of migration in Lab-Abb historic neighbourhood may be analysed from two perspectives:

- In migration from outside of the historic core to Lab-Abb
- Out migration from Lab-Abb out of the historic core

Migration out of the historic core is higher than the influx of population to this neighbourhood. A comparative analysis of the proportion of local migrants from the neighbourhood during the years 1986-2006 shows that at present a maximum of 25-30% of the local population has remained in this neighbourhood and during the past 20 years about 70% of local inhabitants have left it (Iranian Statistical Report, 2014-6). As a result, during the past 20 years, the social identity and structure of the historic core have been changed completely. Table 6.8 shows results from official municipality statistics in the first row and the results from a sample of 350 households from questionnaires by the author. Comparison shows that the literacy rate has dramatically decreased from 85.6% amongst men and 78.1% amongst women in 1996 to 15.98% amongst men and 14.42% amongst women in 2016. This shows that education levels are low and may indicate that employment opportunities are limited for the local population. Unemployment rates and their consequences were discussed in section 6.5.

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Table 6. 8 Population statistics extracted from government reports (1st row) and questionnaires during fieldwork (2nd row); (Source: Municipality report & Author).

Table 6.9 shows the number of immigrants into Lab-Abb neighbourhood during the years 2004-2015. The findings show that the rate of migrants entering the historic core during the decade 2005-2015 has decreased in comparison with the previous decade (1996-2004). This is in line with the total decline in population which is partly due to the deterioration of houses and a rise in crime rates.

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Table 6. 9 Migrants entering sub-case study no.1 during the years 1996-2015 (Source: Statistical Centre of Iran, Public Census of People and Housing, 1996, 2015).

The explanation above and analysis of Tables 6.9 and 6.10 demonstrate that out-migration has had a significant effect on the population of Lab-Abb neighbourhood. It can change the economic patterns and affect physical forms based on the new identity of people that consequently will change socio-cultural and religious indicators, due to other ethnicities entering the neighbourhood who are predominantly Sunni Muslim. Therefore, immigration is significant consideration for the rehabilitation of Lab-Abb historic neighbourhood. Reasons for immigration can be presented as follows:

- Search for work
- Job transition
- Education
- Graduation
- Military service
- Family service (Appendix 3)

6.5.2 Ethnic and cultural composition of inhabitants in sub-case study of Lab-Abb

Since, as stated in Chapter 3, socio-cultural factors are one of the important subjects of the historic rehabilitation of cities, relevant information about ethnic-cultural composition was collected by means of a questionnaire (Appendix 3). Table 6.10 displays the survey's findings, showing that the greatest share of the ethnic composition of residents belongs to Fars people (73.1%). Heterogeneity is deemed to be one of the distinguishing socio-cultural features of this neighbourhood since it may overshadow other characteristics. Also, the analysis of diverse ethnicity in sub-case study no.1 shows a rehabilitation approach for this neighbourhood needs to respond to residents' culture and traditions. Table 6.11 also shows that a large proportion of residents are of Afghan ethnicity and therefore do not have the same cultural links with the historic neighbourhood as Fars residents, because they have not grown up in Iran.

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Table 6. 10 Ethnic composition of residents in the Shiraz historical-cultural zone; (Source: Household socio-economic survey, 2015).

6.5.3 Relationship between ethnicity and family size in historic core

Table 6.12 shows that in sub-case study no.1 on average Turks have the smallest families (2.0 persons), while Afghans tend to have the largest (6.53 persons). This is an important issue for rehabilitating the identity of the place and of sense of belonging to the area, because those families from ethnic minorities may not have as strong a connection or share the same values of the cultural importance of the historic fabric. Larger family sizes also increase the population density of the area, putting pressure on local services.

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Table 6. 11 Ethnic status and family size in historical texture; (Source: Household socio-economic survey, 2015).

6.5.4 The closeness of relationship with neighbours among inhabitants

Paying attention to the levels of relationships between residents of the historic core is essentially important to the discussion about participation in the measures needed for renewal of historic fabric in this neighbourhood. In this connection, one question asked in fieldwork surveys was 'How close a relationship do you have with your neighbours?' Table 6.13 shows the results of this question: about 13% of residents assessed their relationship with their neighbours at a low or very low level. According to the municipality report, the reduction of the number of Fars inhabitants and the high proportion of immigrants in this area are assumed to be the main reasons for poor neighbourhood relations. Simultaneously, 70% of residents have neighbourhood relationships at a high or very high level. A comparison of neighbourhood relations in internal zones of Shiraz's historic core shows that the southern area of the Lab-Abb Locality and the northwest of Sang-E-Siyah locality enjoy different neighbourhood relations from other zones of this neighbourhood (Table 6.13 and Figure 6.12). This is an important factor for rehabilitation because high levels of neighbourhood interaction mean

that residents take more pride in their area and contribute more to the maintenance and help to improve the quality of the environment in which they live.

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Table 6. 12 The closeness of neighbourhood relations among inhabitants in sub-case no.1; (Source: Municipal Household socio-economic survey, 2015).

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Figure 6. 10 Rates of neighbourhood interactions in Lab-Abb historic neighbourhood, (Source: Shiraz Municipality anotated by Author).

6.5.5 Rate of participation in collective activities

Participation in collective activities will now be considered. This is important because residents who participate in community and collective activities, will be more likely to participate in rehabilitation of houses and neighbourhoods, since they have a community-orientated mindset and community participation enables greater success in rehabilitation.

Table 6.14 shows the rate of participation in collective activities, such as religious ceremonies and community projects and fairs, among inhabitants; of which 90% of inhabitants participate in collective activities locally at a low or very low level, indicating the level of this undesirable situation in this neighbourhood.

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Table 6. 13 The rate of participation in collective activities among inhabitants in sub-case one (Source: Household socio-economic survey, 2015).

According to Table 6.14, it is necessary to use new mechanisms in order to invite local residents to participate in the rehabilitation of the historic neighbourhood and also improve their quality of life. An interview with a senior expert of Shiraz Municipality (Appendix 1, Question 12), explained the importance of public participation. Public participation includes the involvement of people in all areas of policy-making, prioritization, monitoring, implementation and follow-up. However, participatory management introduced different aspects such as government being transparent with residents about development plans and construction law. This approach can be effective in the development of Shiraz historic neighbourhoods. Hence, it is necessary to introduce some of the principles of this approach identified by the respondent during the interview with a Shiraz Municipality Representative (Appendix 1), which are as follows:

Principles of Participation
In a collaborative project, the improvement of environmental quality should be the priority for rehabilitation. Therefore, desires and benefits of residents take precedence over everything else.
In every collaborative project, goals, policies and planning framework should be determined with the consent of the residents.
In a real collaborative project, if the partnership entails costs, then project planners and officials should be willing to undertake it.
Public cooperation should be encouraged in carrying out a public service such as the maintenance and development of green spaces, attracting investors in the construction of cultural and sports facilities and supervising the works.
Special measures should be adopted and training provided at neighbourhood level to deal with crises.
A sense of cooperation between neighbourhood residents and government institutions should be fostered in the neighbourhood.

Table 6. 14 Principles of Participation.

Through an interview with the Fars Governor Representative in the Urban Development Department (Appendix 1, Questions 8 and 12), it was established that public participation in local affairs, through associations and non-governmental organisations, such as community groups, raise awareness of legitimate freedoms and encourage the public to exercise their rights. Hence, the administration of the neighbourhood by the local residents is the best means of development of social awareness. Table 6.8 shows that out migration of this neighbourhood is high, and Table 6.14 shows that participation in collective activities are at a very low level, which threatens the historic fabric because the residents are less likely to participate in community maintenance projects.

Comparison of Tables 6.9, 6.10, 6.11, 6.12, 6.13 and 6.14 shows that overall, in Lab-Abb neighbourhood, there is a high number of immigrants, large family size and very low participation in collective activities, although neighbourhood relations are at a high level. The combination of these factors shows that there is a poor connection between the residents and the historic fabric, since many of them did not grow up in Iran. The large family size may contribute to poor neighbourhood relations, since people from large families may have less income to spend participating in community activities.

In interview with the Shiraz Historic City Council representative (Appendix 1, Question 7 and 14), several issues were identified in relation to the lack of participation of residents in the process of rehabilitation of sub-case study one, which are as follows:

- Unaffordability for residents to carry out reconstruction of their properties
- Heavy demands being placed on limited resources (from social activities and land use)
- Lack of access for residents to urban facilities (schools, healthcare and social support)
- Less access from historic core to limited resources which are mainly being used by other areas of the city
- Conflicts of interests between historic values and urban development plans in the historic fabric
- Investors cannot invest securely in the historic fabric
- Opportunities and resources are not being used to their best potential

A rehabilitation strategy should therefore be devised to provide residents with funding for reconstruction of their properties, promote the better management of resources, create access to health, educational and social facilities and maintain the historic values while developing the historic core.

6.4 Effect of Economics on the formation of Lab-Abb neighbourhood

According to the governmental statistical report of 2015, in Lab-Abb neighbourhood, of the total population of 9791, of which 33% are in employment. Of the people employed, 57.5% are men and 7.5% are women.

Figure 6.10A shows that the unemployment rate in Lab-Abb neighbourhood is at the minimum rate in the south and the maximum rate in the east of the neighbourhood. This is related to the position of commercial facilities close to the southern edge of the neighbourhood and lack of connectivity to the shops causes higher unemployment in the east. When compared with Figure 5.24, it can be seen that the unemployment rate throughout most of Lab-Abb neighbourhood is at the lowest rate for the whole historic core.

Figure 6.10B shows that the majority of residents in Lab-Abb neighbourhood belong to the lowest socio-economic groups, that is, the majority of residents' work in unskilled or labour-based employment, rather than managerial or professional-type roles. In the west of the neighbourhood, there are fewer unskilled workers. When compared with Figure 5.25, it is apparent that the household income rates in most of the Lab-Abb neighbourhood are at the highest rates of the whole historic core.

Figure 6.10C shows that the living conditions in Lab-Abb are generally higher in the south of the neighbourhood, while the northern limits of the neighbourhood have much lower quality. A comparison with Figure 5.26, shows that the living conditions are near the top end of those seen in the whole historic core.

Figure 6.10D shows that the centre of Lab-Abb neighbourhood houses a high proportion of the lowest income residents, but around the outer limits of the neighbourhood, the income levels are significantly higher.

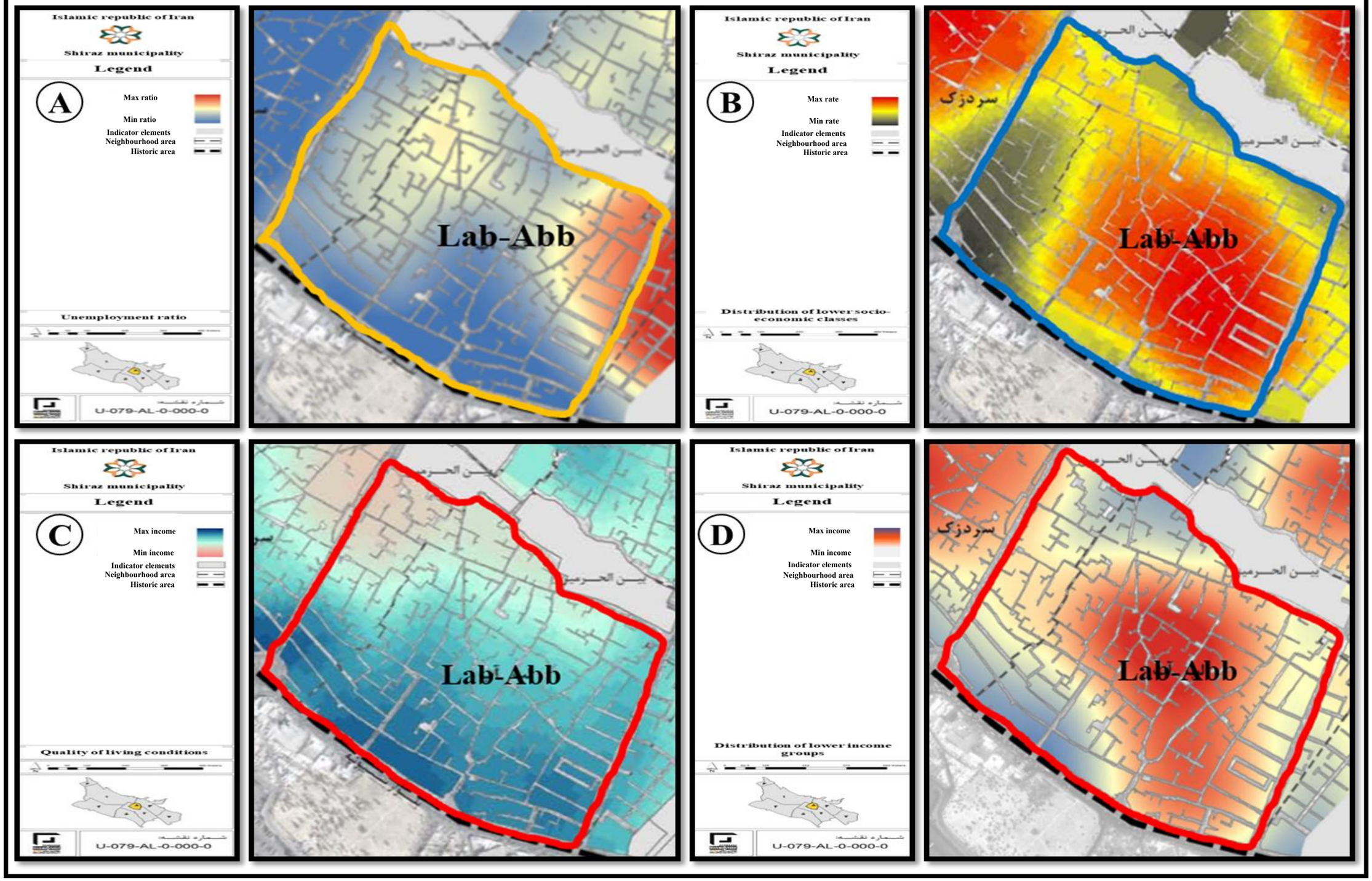

Figure 6. 11 A) Unemployment rates in Lab-Abb neighbourhood; B) Distribution of lowest socio-economic classes; C) Quality of living conditions; D) Distribution of low-income residents of Lab-Abb (Source: Author based on Shiraz Municipality data).

Figure 6.11E shows that the rates of people renting accommodation in Lab-Abb neighbourhood is at the highest rate in the centre of the neighbourhood. When compared with Figure 5.27, it is clear that the number of people renting in Lab-Abb neighbourhood is one of the highest rates of the whole historic core.

Figure 6.11F shows that the price of residential property in Lab-Abb neighbourhood is at the minimum rate in most of the neighbourhood, but with much higher rates around the outskirts of the neighbourhood. A comparison with Figure 5.26, shows that the land prices in Lab-Abb are amongst the lowest for the whole historic core.

Figure 6.11G shows that residential rental prices in Lab-Abb neighbourhood are at a low rate in most of the neighbourhood, with slightly higher rates at the southern edges of the neighbourhood. This may be a strong motive attracting low-income residents to this neighbourhood. When compared with Figure 5.28, it is apparent that the rental prices in Lab-Abb are at the lowest rate for the whole historic core.

These maps were created from statistical data collected by the government and entered into a database. The author used the database to identify and analyse the distribution of these issues in Lab-Abb neighbourhood.

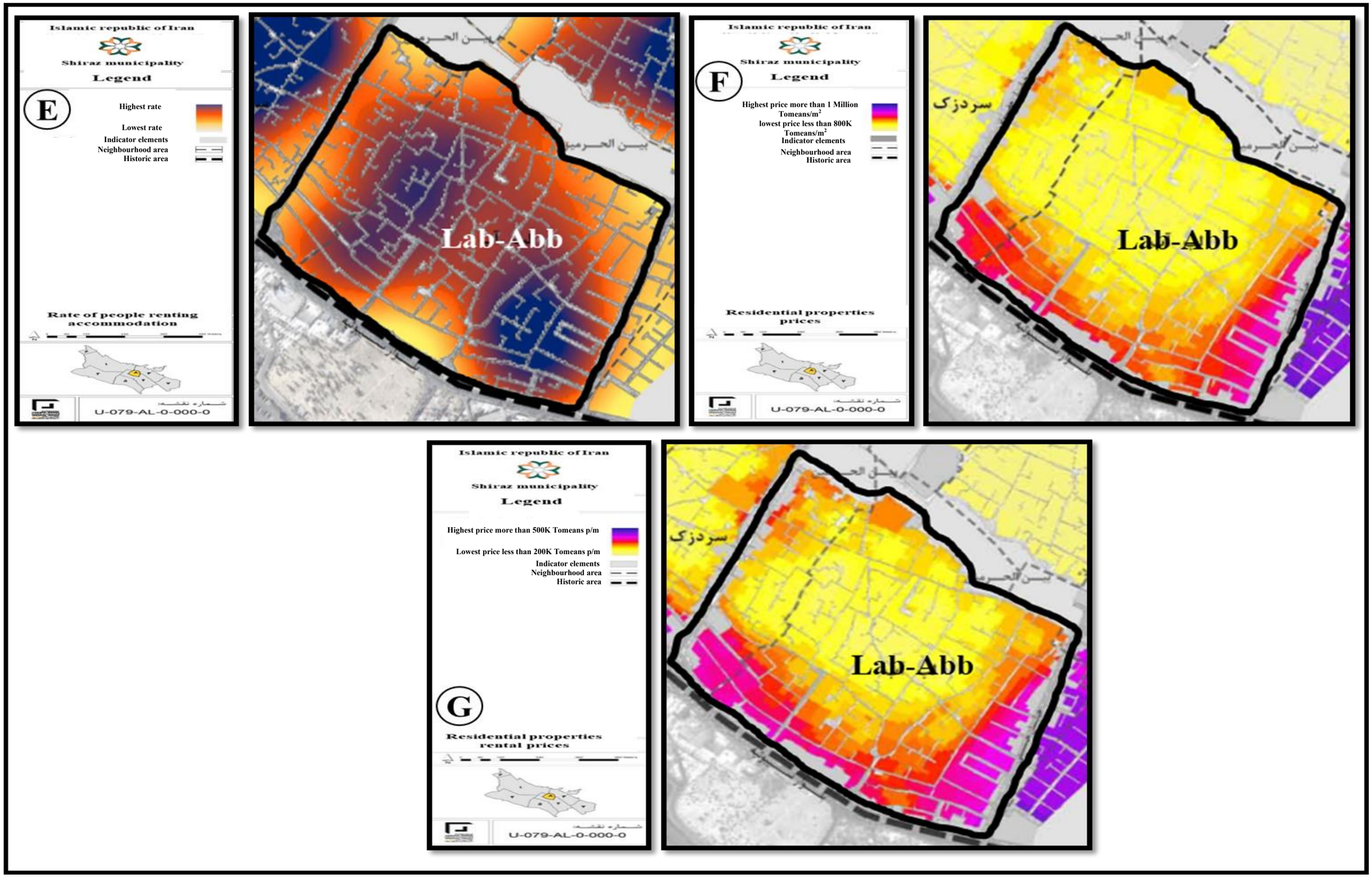

Figure 6. 12 Rates of people renting accommodation; F) residential property prices; G) Residential property rental prices in Lab-Abb (Source: Author based on Shiraz Municipality data).

The analytical maps in Figure 6.11 present a mixed picture: on the one hand, employment levels are relatively high, with relatively high-quality living conditions and relatively low-priced accommodation. On the other hand, income rates are low, with residents belonging to lower socio-economic groups, and rates of home ownership are low. Although municipality intervention has refurbished parts of the area, improving the conditions of the roads and buildings, the high proportion of rental properties shows that there is a risk of deterioration in the quality of housing, since owner-occupiers are more likely than landlords to maintain their properties, and high levels of maintenance depend upon groups of owners collaborating on large-scale renovation, which is more difficult to achieve if many of them are not living in the neighbourhood. Furthermore, the low income of the residents means that they are unlikely to participate in renovation of buildings and low rental rates means that if dilapidation of houses occurs, the residents are likely simply to move to alternative accommodation, rather than complete or collaborate on maintenance of houses. This information is useful for proposing a rehabilitation strategy because the decision-makers and planners need to address the need for maintenance and renovation and therefore, need the co-operation of property owners.

Analysis of the questionnaires collected in fieldwork (Appendix 3) indicates poor socio-economic status, in Lab-Abb neighbourhood and, as a result, the neighbourhood appears to be in a poorer condition than other parts of Shiraz's historic fabric, since municipality intervention only covered part of the area. Hence, the current landscape of the Lab-Abb neighbourhood shows the following features:

Socio-economic findings of Lab-Abb neighbourhood
Relative to length of time living in the neighbourhood, this neighbourhood has large numbers of immigrants with few skills and low levels of education.
According to Appendix 3, analysis of the questionnaires shows that this neighbourhood has duality of cultures and demographics, which is the accumulation of collective households and elderly people.
Basic literacy in this neighbourhood is at a low level and the majority of residents have part-time jobs with a low salary.
This neighbourhood has few urban facilities as well as welfare indicators.

Table 6. 15 Socio-economic findings of Lab-Abb neighbourhood.

All these factors have led to further deterioration of the neighbourhood and the lack of willingness to invest in it.

6.6 Morphological and urban formation of sub-case study one (Lab-Abb neighbourhood)

Table 3.3 in Chapter 3 shows the layers of morphology in the urban fabric. This section discusses these layers in turn. However, since the fabric on this zone is organic, there are no blocks, as buildings were built on plots individually. For this research, in order to collect and analyse information, the general terms of morphology are used because residential quarters have been affected by modernisation, some street networks have disappeared over time and the gates no longer exist. The goal of this research is to rehabilitate the urban fabric so that these missing elements are returned to the urban system.

Topography: Lab-Abb neighbourhood sits on a plain, with no rivers, hills or valleys. A senior expert of Shiraz Municipality (Appendix 1, Question 10.2), stated in interview that elements influenced by natural topography, such as pedestrian routes, the Azodi and Rokn-Abad subterranean streams have strongly influenced the formation of this neighbourhood, since in the Atabakan era (13th century AD) residents used them for drinking water, watering gardens, ceremonial washing, public baths, and washing clothes. However, in recent years they have all been destroyed and do not exist anymore.

Land use pattern: As shown in Figure 6.8 and Table 6.5, Lab-Abb contains commercial, residential and mixed-use land.

Street pattern and open spaces: Analysis of historical maps and fieldwork study reveals that Lab-Abb neighbourhood was formed organically, that is, without municipal planning, and the shape of passages are non-geometric, (see Figure 6.13). These labyrinthine passages provide security and privacy for the dwellers. The Shiraz Municipality senior expert (Appendix 1, Question 9), stated that each passage has its own individual route system, hierarchy, quality, scale and dimensions. The hierarchical system denotes the access routes to cities; for example, the routes which enter the neighbourhood from the main gate have a public function. Figure 6.13 shows how main branches of routes through the neighbourhood connect different parts of the district while subsidiary branches have local functions; moreover, minor alleys and dead-ends only serve the residents of those passages.

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Figure 6. 13 The organic structure of sub-case study one; (Source: Municipality report, annotated by Author based on Shiraz Municipality data).

Analysis of the spatial and morphological structure of Shiraz's historic fabric, which was carried out by Shiraz Municipality in 2014, identified this neighbourhood as more secure compared to other districts in Shiraz's historic fabric since the entry of newcomers in dead-end streets attracts people's attention.

Within the Lab-Abb historic neighbourhood there is a hierarchy of privacy (public, semi-public, semi-private and private) that no longer exist in new neighbourhoods. This hierarchy is a remainder from the pre-Islamic urban structure that has merged with Islamic urban features. The privacy construction is an example of how religion affects the urban form, since it comes from one of the main principles of Islam: for women to be able to see, but not be seen. Figure 6.14 shows how semi-private spaces such as entrance halls in buildings no longer exist and residents move directly from private to public spaces.

Figure 6. 14 Example of privacy features in sub-case study one; (Source: Author).

During an interview, the senior expert of Pardaraz architecture and urban design consultants identified that the passages played an important role in shaping and forming this historic area. (Appendix 4, Questions 6 & 7). So, it was necessary to determine their functions and their characteristics (Figure 6.15).

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Figure 6. 15 Names of passages and their location; (Source: Fars Government).

Recent intervention in the street pattern can be seen in the design of improved roads and widened passages in different parts of Lab-Abb neighbourhood (Figure 6.16).

Figure 6. 16 Comparison of passages after widening in Shiraz's historic fabri (Source: Author).

6.7 Factors affecting road formation

Analysis of different layers of the physical structure of Lab-Abb neighbourhood shows an irregular, complicated road network which developed nodes that are ingrained throughout. It is hard to rationalise this kind of formation due to the lack of historical

information and its structural complexity. However, contributing factors to the formation of the neighbourhood can be identified as follows:

6.7.1 Position of gateways and landmarks in the neighbourhood

A representative of Housing and Urban Development (Appendix 1, Question 3) identified that the location of gateways, such as the Shah-Daee-Allah gateway, have shaped some passages in this neighbourhood by connecting different parts of the neighbourhood to important buildings. The origin of the main historical, functional streets in this neighbourhood is connected to the main gateway which is located in the south of this zone. The previously established hierarchy of the passage does not meet the needs of contemporary life, since the streets are too narrow for vehicles and emergency access.

In the opinion of a senior expert of Shiraz Municipality (Appendix 1, Question 10.8), re-using a hierarchical order can increase permeability and accessibility to this neighbourhood. Therefore, historical experts considered these factors to improve accessibility on three levels, to public spaces such as the Grand Mosque, the Castle and to the residential zones.

6.7.2 Access to public spaces with historical and cultural values

A representative of the Cultural Heritage, Tourism and Handcraft organization (Appendix 1, Question 10.8) stated that access to public spaces plays a key role in attracting tourism to this neighbourhood. Therefore, it is necessary to keep the fundamental structures of this neighbourhood as well as preserving the environmental values and place identity. In this regard, this research examined the ease of access by using the traffic analysis conducted by the municipality between the historical passages and peripheral areas and important buildings (Appendix 5).

Four passages that played an important role in shaping this neighbourhood were identified by analysis of the Municipality report (2015) and traffic analysis (Appendix 5). Figure 6.17 shows the location of these passages in Shiraz historic fabric.

- Passage number one: Emamzadeh Alley
- Passage number three: Bahar E-Iran Alley
- Passage number five: Alamdar Alley
- Passage number eleven: Baghiriha Alley

These will be analysed in relation to their morphology, followed by their urban design qualities (permeability, variety, legibility, resilience).

6.8 Historic passage no. 1: Emamzadeh Ebrahem alley

Historical passage no.1 (Figure 6.17) is known as Emamzadeh alley, Emamzadeh Ebrahem Alley and Mansuriyeh Market (because of the intersection of the passage with Mansuriyeh Alley).

Figure 6. 17 Pictures of historical passage of Emamzadeh Alley (Source: Author).

It is situated at the northern edge of the passage and is at the centre of the southern limit of historic core and the gap between Sibeveih Boulevard (in the south) and Dar-Al-Shefa passage at the south of the Shah-Cheragh Complex (Figure 6.18).

This passage is part of the structural roots in this historic neighbourhood and has played a commercial role, being strongly connected to trading facilities such as the market.

Figure 6. 18 Location of the passage of Emamzadeh alley in Shiraz historic core; (Source: Shiraz Municipality).

6.8.1 Morphology of the passage

Passage no.1 is 790m long in a general north-south direction. The average width of the passage is 4m, and the maximum and minimum width are 6m and 2m, respectively. The passage is coated with asphalt and has no pavement.

The passage has an organic and indeterminate shape and the general direction and width are very variable with little order or regulation discernible in the arrangement of plots adjacent to this historic passage. Three main patterns of plots are seen on two sides of this passage.

- Pattern one; the major plots have an east-west orientation, and they are placed at regular intervals. On these plots, buildings are also located on the western side.
- Pattern two; dominant plots have a north-south orientation, and they are placed at regular intervals. On these plots, buildings are also located on the western side.
- Pattern three; plots have an organic, irregular pattern.

All of these plot patterns are illustrated in Figure 5.15; Figure 6.19 shows the location of these plots within Lab-Abb neighbourhood. In order to see the detailed plot structure, see Appendix 8.

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Figure 6. 19 Location of different plot patterns in Lab-Abb neighbourhood (Source: Shiraz Municipality).

The variety and heterogeneity of plot design affect (both positively and negatively) the landscape along the passage wall because on the one hand, traditional style buildings and workshops can be seen in their original form but on the other hand, it appears disorganised, badly designed and lacks aesthetic appeal (Figure 6.20).

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Figure 6. 20 An example of inconsistent designs within the southern limits at Emamzadeh Alley passage, (Source: Shiraz Municipality).

6.8.2 Urban Design Qualities of the passage

Urban design qualities were mentioned by residents in the questionnaires (Appendix 3) when considering how some passages are more valuable than others due to their type and their compatibility with their context. These values are assessed in the following ways:

Permeability

Examination of maps and site surveys and the existing old caravanserai along this route at the northern area of the neighbourhood show the historic connection between this passage and the market. At one end it is connected to the edge of Lab-Abb neighbourhood, and at the other end it is connected to the main structural elements, such as the Bazaar and Grand Mosque. Therefore, it is of vital importance (Figure 6.21).

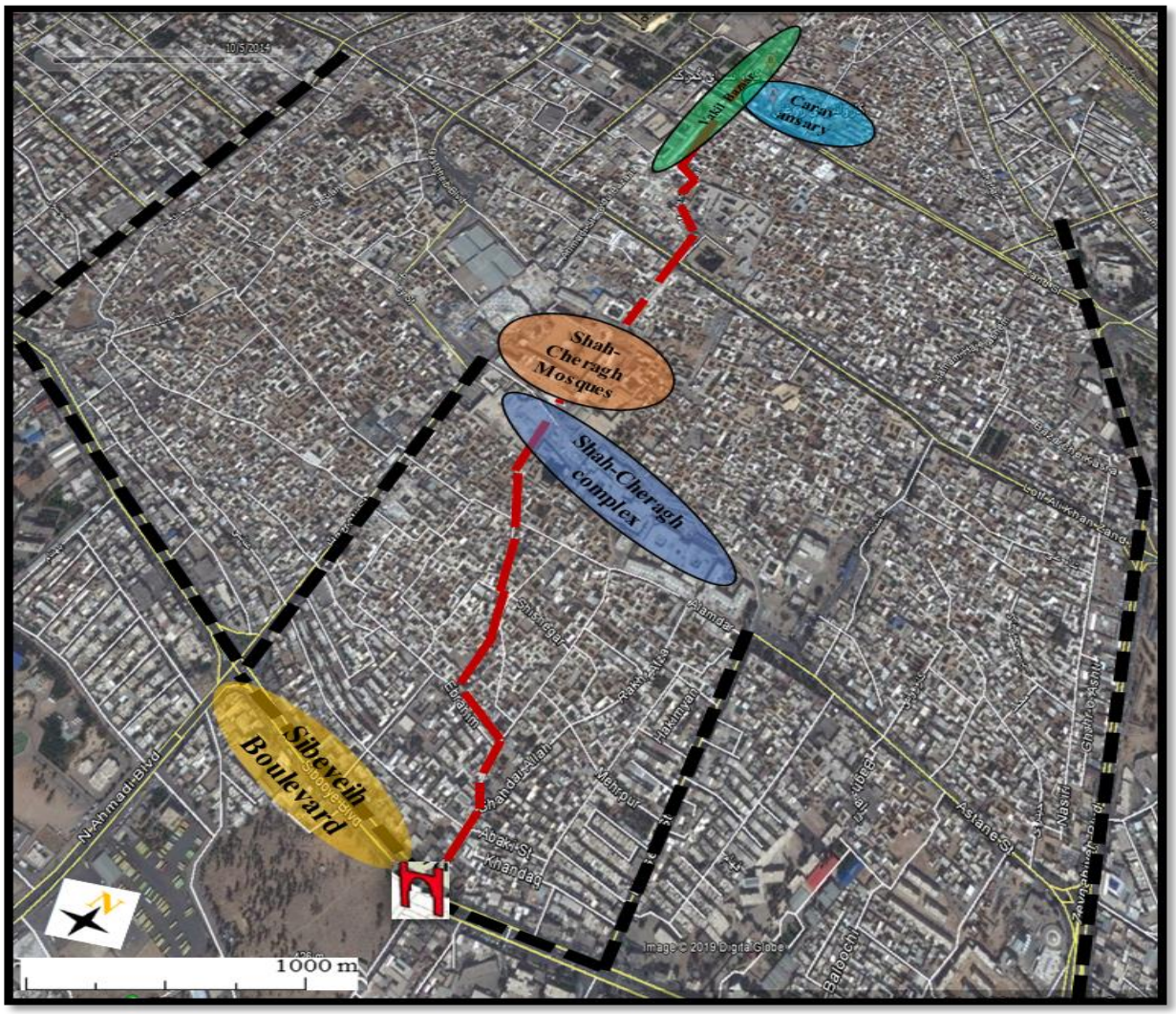

Figure 6. 21 How Emamzadeh Alley connects different areas to Shah-Cheragh shrine, the Grand Bazaar and the caravanserai; (Source: Google maps, annotated by Author).

Analysis revealed that this axis possesses strong spatial connections and continuity with structural elements of urban historic fabric, apart from the pending development project in the Shah-Cheragh Complex. The coordinated connection of linear structures, such as the local mall, and centralized elements, such as forecourt and nave, along with the course of this passage, are considered spatially valuable qualities.

The annual report of Shiraz Regional Electricity Authority 2014 shows that the lighting sources and electrical transmission network in this passage (and throughout the historic core) are supported on wooden posts. In some cases, they are inconveniently located, as they restrict ease of passage, especially for vehicular traffic. Shiraz Regional Water and Sewage Authority Report 2014 shows that the surface water discharge system is built on concrete waterways. Similarly, eleven wells can be identified whose function is the collection and discharge of water flowing through this passage. This passage does not have any street furniture.

Variety of land use and buildings

The land use of this passage is mixed-use, with commercial, religious and residential buildings (Appendix 5). Overall, the historic and culturally valuable buildings of this passage are considered to be at risk, and many of its historic houses need to be repaired and reconstructed, as shown by Figure 6.22.

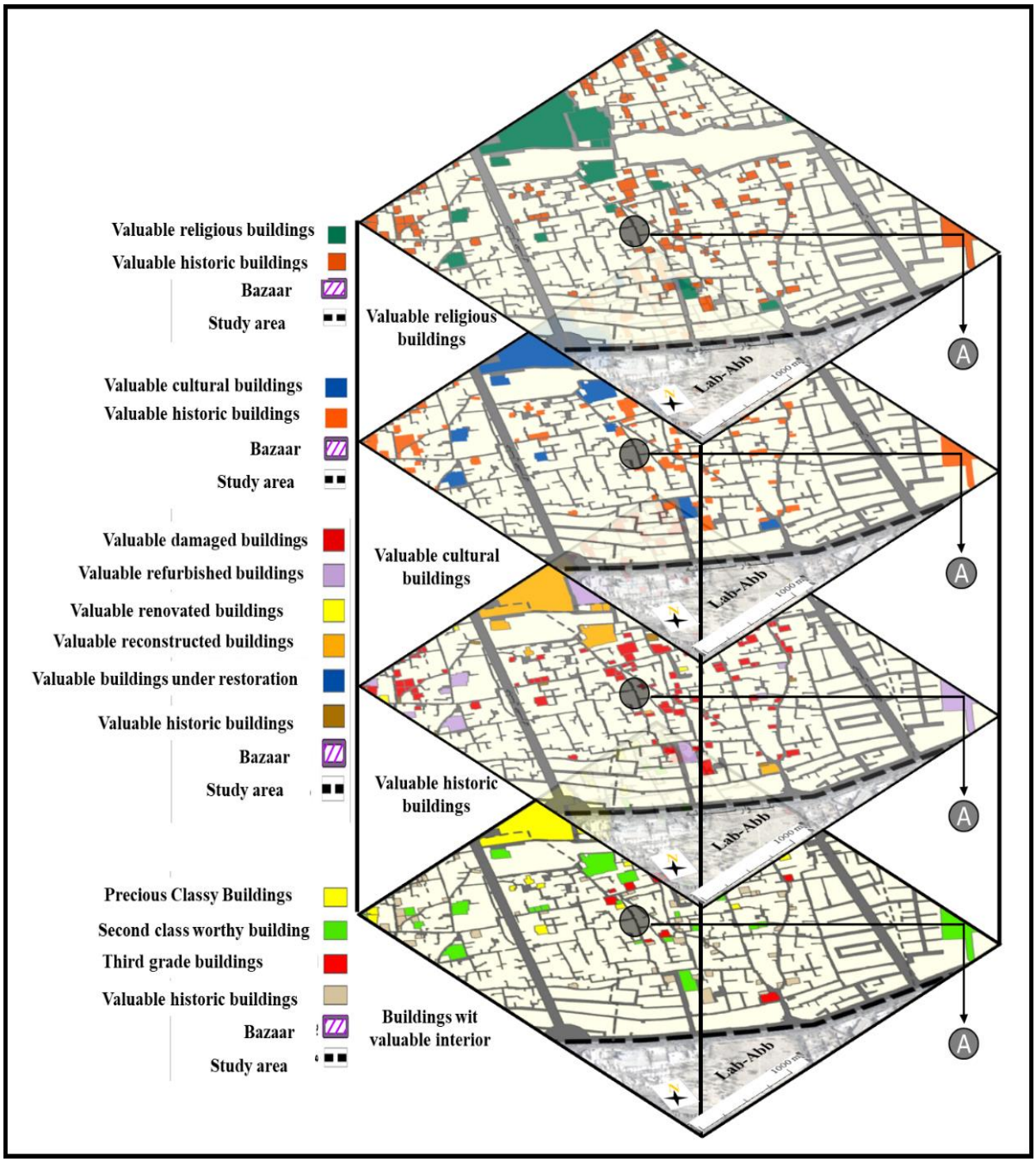

Figure 6. 22 Layers of analysis to show the location of different classes of valuable buildings in Lab-Abb neighbourhood and the location of the intersection of alley no. 100 and Alamdar Alley (Source: Author based on Shiraz Municipality data).

It includes the Shah-Cheragh complex, the Atigh Grand Mosque of Shiraz, Taheriyeh mosque, Hakim school, and Hajji (Twelve Imams Alley). Of these, the Shah Cheragh Complex and Atigh Grand Mosque of Shiraz are the main landmarks of the historic fabric, which play an essential and direct role in the infrastructure and distribution and arrangement of spatial organization, movement systems and function (Figure 6.23).

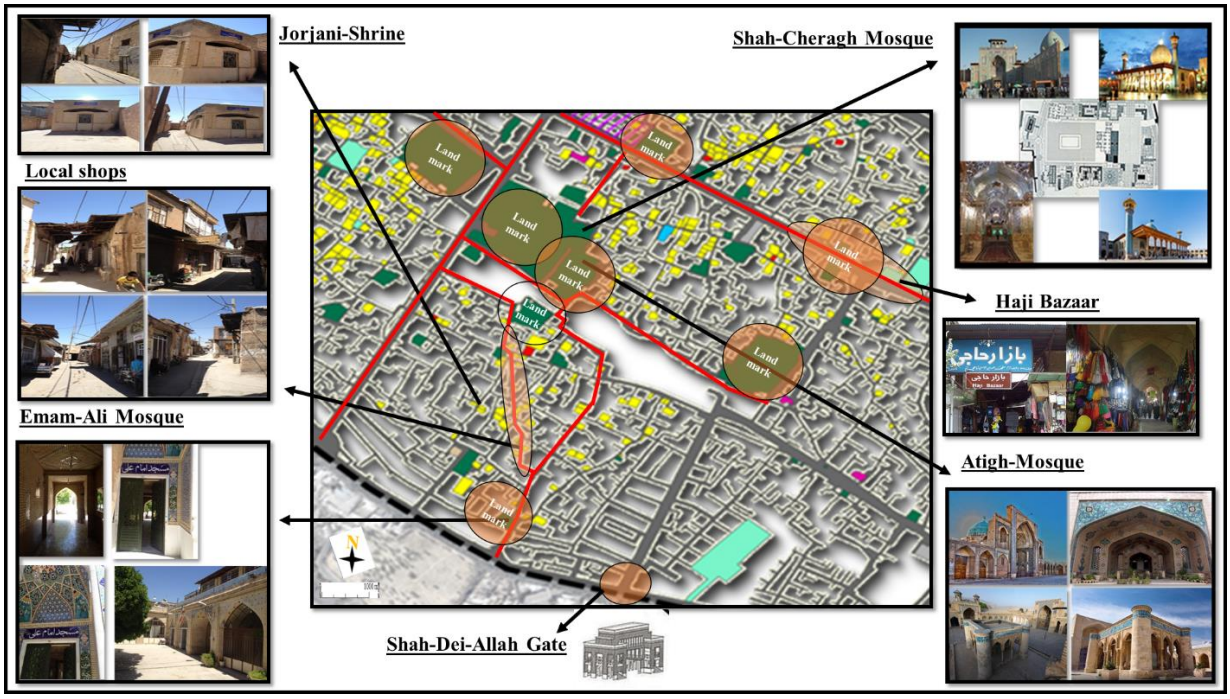

Figure 6. 23 Shows the location of landmarks that affects the formation of Lab-Abb neighbourhood; (Source: Author based on Shiraz municipality data).

There are buildings of historic and cultural value along this passage. Only one section of this passage, approximately 110m long, from the intersection of alley no. 100 and Alamdar Alley to the limits of Mir-Sharif-Jorjani tomb Figure 6.22 (A), may be modified by straightening, due to the absence of valuable buildings, while the rest of the passage is winding.

Furthermore, some of the constituent elements in this passage are placed in a sensitive position (Figure 6.24) and any intervention should be carried out observing certain regulations such as Shiraz Master plan (1996), and the revision of Shiraz historic centre master plan (2018).

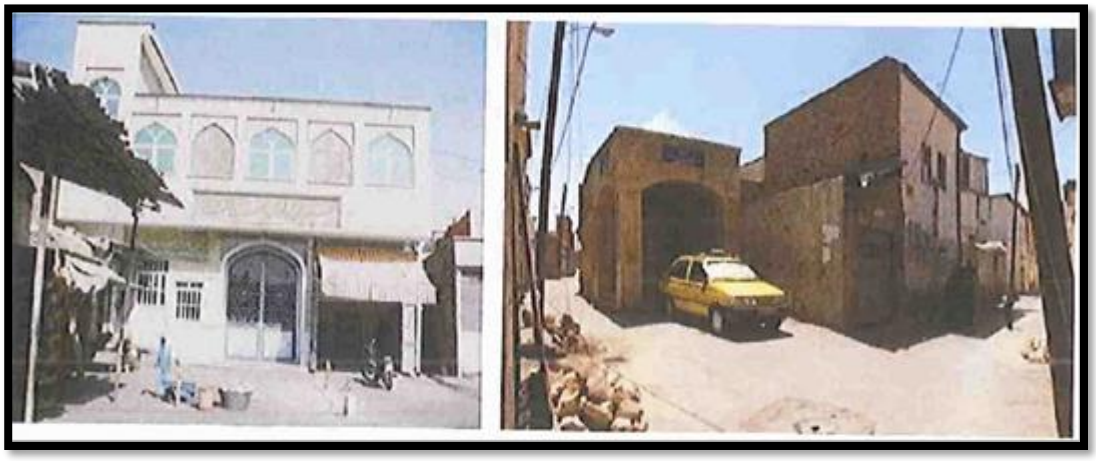

Figure 6. 24 Jorjani tomb and Seyed Al- Shohada Hosseiniyeh in Emamzadeh Alley.

According to a senior expert of Shiraz Municipality, valuable architectural elements can be categorized in this passage as follows:

- A covered passage located in the southern part of the neighbourhood, which is connected to Sibuyeh Boulevard through alley **5/14** to the Emamzadeh-Ebrahem alley. (Figure 6.25 A)
- Eight sections of this passage are covered by sunshade roof, approximately 80m long, which mainly include commercial spaces and malls. However, some historic sunshades have been replaced with more modern ones. (Figure 6.25 B)
- Three buildings are located around this passage which have valuable architectural motifs. (Figure 6.25 C)

Figure 6. 25 Examples of valuable architectural elements in Emamzadeh-Ebrahem alley.

A representative of Fars Government highlighted in his interview that the passage possesses very high visual richness as shown in Figure 6.26, which shows a variety of architectural designs in streetscape elevations as one move along the passage. He also stated that the quality of variation and spatial contrasts in this path may be still recognized as an organic and historic axis. Due to its special morphological and visual qualities (local and traditional colour and basic themes in the walls and physical elements like sunshade and architectural decorations) this path is also in a favourable condition. Conducted investigations show that historic passage no.1 has the highest value of all passages in terms of accessibility, architectural and cultural value and highest priority for intervention.

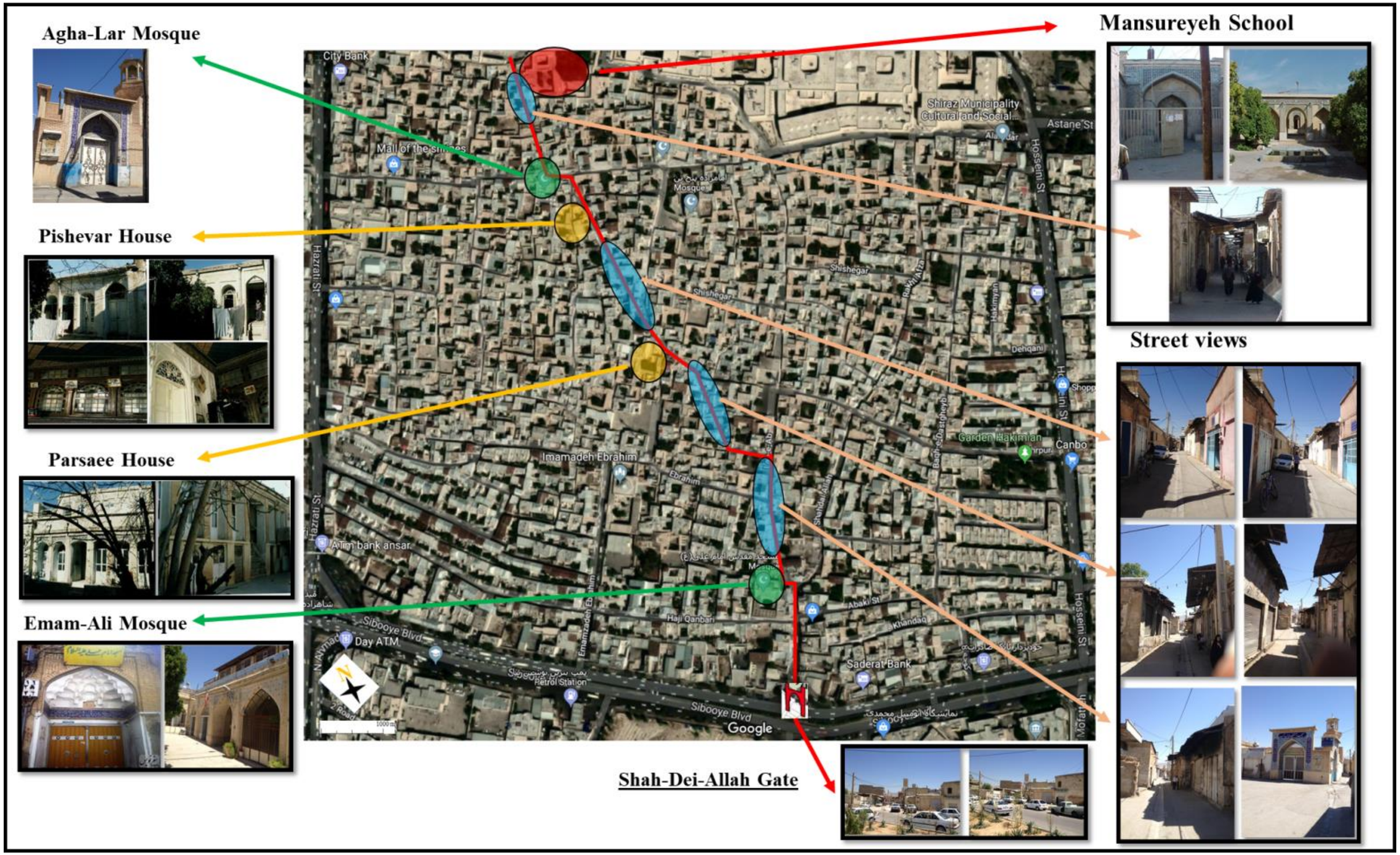

Figure 6. 26 Examples of visual richness in Emamzadeh Alley; (Source: Google Maps and Author; maps annotated by Author).

Legibility

According to the GIS analyses carried out by Shiraz Municipality, the wall-to-floor ratio in this passage is 2:1 which defines the space well and creates a sense of enclosure. This ratio is smaller at the southern limit of passage, and it gradually increases from the fork, at the Ali-Mosque and its adjacent Hosseiniyeh centre. Due to privacy on second floors and the narrowness of paths branching from this route, the full sense of spatial enclosure in the passage has been improved (Figure 6.26).

A senior expert of Shiraz Municipality stated (Appendix 1) that there is greater legibility in the commercial areas and main routes of this passage, but like much of Shiraz historic core, overall, lateral visibility along this passage is low due to narrow passageways (6-8m wide). Privacy strongly influences the winding and narrow nature of the passageways, with a lack of windows on building frontages. There is also a short distance of visibility along the passage, due to its organic, winding fabric. This increases the rate of potentially unsafe spaces, diminishing the spatial qualities.

Space Syntax analysis carried out during fieldwork identified that this passage is well defined by the presence of notable landmarks at its beginning and end as shown in Figure 6.21 (Sibeveih Boulevard in the south, and Shah-Cheragh in the north). These highly defined start and end points alongside the presence of buildings with unique and historical characteristics contribute to improving the quality of legibility in this route.

Distinctive features also contribute to the rising quality of legibility both in the neighbourhood as a whole and in the passage (the Emam-Ali mosques adjacent to it, Jorjani-Shrine, local shops: Figure 6.27); on a city-wide scale there are some landmark buildings that highlighted the historic role of this passage to connect mosques and bazaars, such as Atigh-Mosque, Shah-Cheragh Complex, and Haji Bazaar. However, the connection between some of these elements, like Jorjani-Shrine, with this passage should be better designed and organized for the preservation of spatial qualities.

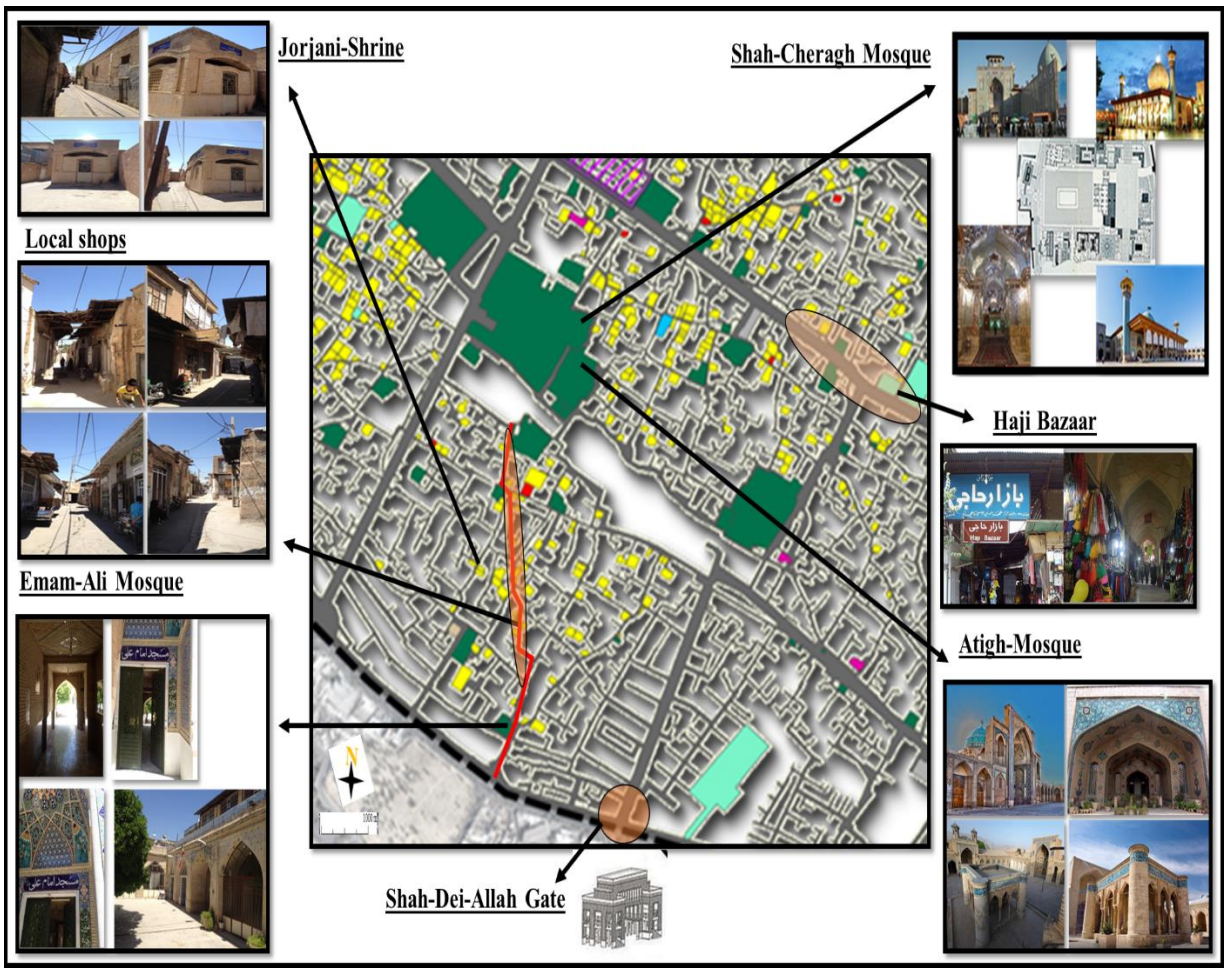

Figure 6. 27 Buildings which contribute to the legibility of Emamzadeh Alley.

Resilience

Resilience is analysed using field surveys by the author to ascertain how well the passage has adapted to modern life and to perceive any threats to the historic fabric. Analysis of the interviews with the main stakeholders (Appendix 1) identified that damage in this passage (including visual pollution and dilapidation of units) is immediately apparent. This includes:

- Pollution and waste from the processes used by traditional trades, such as coppersmiths (as seen in Figure 6.20), and air conditioning in the southern limit of this passage. This is disruptive for inhabitants, passers-by and puts historical monuments at risk.
- The laying of tar macadam giving rise to a lack of air circulation, and the lack of moisture exchanges in the passage causing erosion and dilapidation.
- Overuse of capacity. This give rise to landscape and structural damage in the passage. One of the main consequences of this is construction of new buildings

adjoining existing ones, causing visual pollution due to inconsistency and structural damage.

- Disruption in the movement system and access to the passage causes discontinuity in this highly valued historic passage and threatens to weaken the building structures. As a result, this system has been modified due to recent interventions, such as demolishing old houses and turning them into public car parks.
- Damage caused by interference from horse-drawn and other means of transport, in addition to pedestrians.

Analysis of this passage identifies that the passage contains many important mixed-use buildings, which give identity to the passage and neighbourhood based on the history and the usage for which the passage was constructed over different periods. Therefore, it has local importance for the residents because it presents their cultural identity. The passage has religious importance due to the number of historic mosques being located in this passage and it has an impact on the neighbourhood in terms of the connectivity and activities. However, some factors such as old building materials threaten the buildings in the passage and therefore it has high priority for rehabilitation.

6.9 Historic passage no.3: Bahar-E-Iran Alley

According to History of Shiraz Historic Fabric (Afsar, 1974) and an interview with a local community representative (Appendix 1), this passage is one of the oldest access routes in sub-case study 1 and in Shiraz historic core; although it is generally considered to be of second grade value (that is that is possesses some morphological, spatial and functional values but they require intervention, which must be in keeping with the preservation of its identity) with regard to date and importance. The historical monuments of this route are mainly from the Qajar (1789-1925) and Pahlavi (1925-1979) eras. This passage previously connected two zones of the Shah-Dayee-Allah shrine and Kazeroon gates. Today this link is interrupted by the intrusion of Ahmadi Street (Figure 6.28).

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Figure 6. 28 The situation of Bahar-E-Iran Alley passage in Shiraz's historic core; (Source: Shiraz Municipality annotated by author).

Analysis of historical maps of Shiraz and observation in the field work show that this passage is one of three passages orientated in a north-easterly to south-westerly direction in the south-western limit of the historic core of Emamzadeh-Tajeddin-Gharib Shrine (Figure 6.15).

Figure 6. 29 The situation of ramification of historical passages from Kazeroon gate; (Source: Shiraz Municipality).

The presence of various groups in this space indicates a high level of social life and vitality in the passage space. Similarly, this passage enjoys a multicultural environment as well as a space attractive to people within the zone of Emamzadeh-Ebrahem Shrine. Hence, with respect to the conducted investigations, historic passage no. 3 is placed at the second level of value in terms of cultural and historic value and priority of rehabilitation. This is because the area shown inside the blue circle in Figure 6.29, which is the start of Bahar-E-Iran alley, was improved recently by the municipality through renovating houses and monuments and improving accessibility. Although the part of the passage that was renovated is outside of the Lab-Abb neighbourhood, the passage as a whole is considered less vulnerable than passage 1.

6.9.1 Morphological components of the passage

The axis is a historic passage with an organic and irregular form, running in an east-westerly direction in which the width varies considerably. No actual order may be observed between adjacent buildings in historic passages, but one of the most regular arrangements in the blocks of the historic passage is related to placement of buildings within plots beside the given passage. Nearly all of the plots on the southern side of this passage have been placed along a south-eastern-south-western orientation, and the buildings are located in the northern part of the plots (Appendix 8).

Integration within the plot of regular-shaped buildings contributes to the definition of the skyline but there are numerous exceptions to this. Recent morphological interventions have created a type of spatial discontinuity using cross-like axes, which disconnect this path from the south-western limit of the historic core. In fact, the intersection of this passage with the current Ahmadi Street, which was an existing structural axis in the historic core, was previously considered a major crossroads of historic passages, but nowadays due to the difference in role and hierarchy between the streets the streets are not well connected. During fieldwork observation, it was identified that the lighting sources and electricity transmission network in this passage are implemented by wooden lampposts for electrical cables. Investigation by the Department of Energy revealed that fifteen electrical lampposts had been installed at irregular intervals in this passage and in some cases are obstacles to traffic flow, particularly vehicular transport.

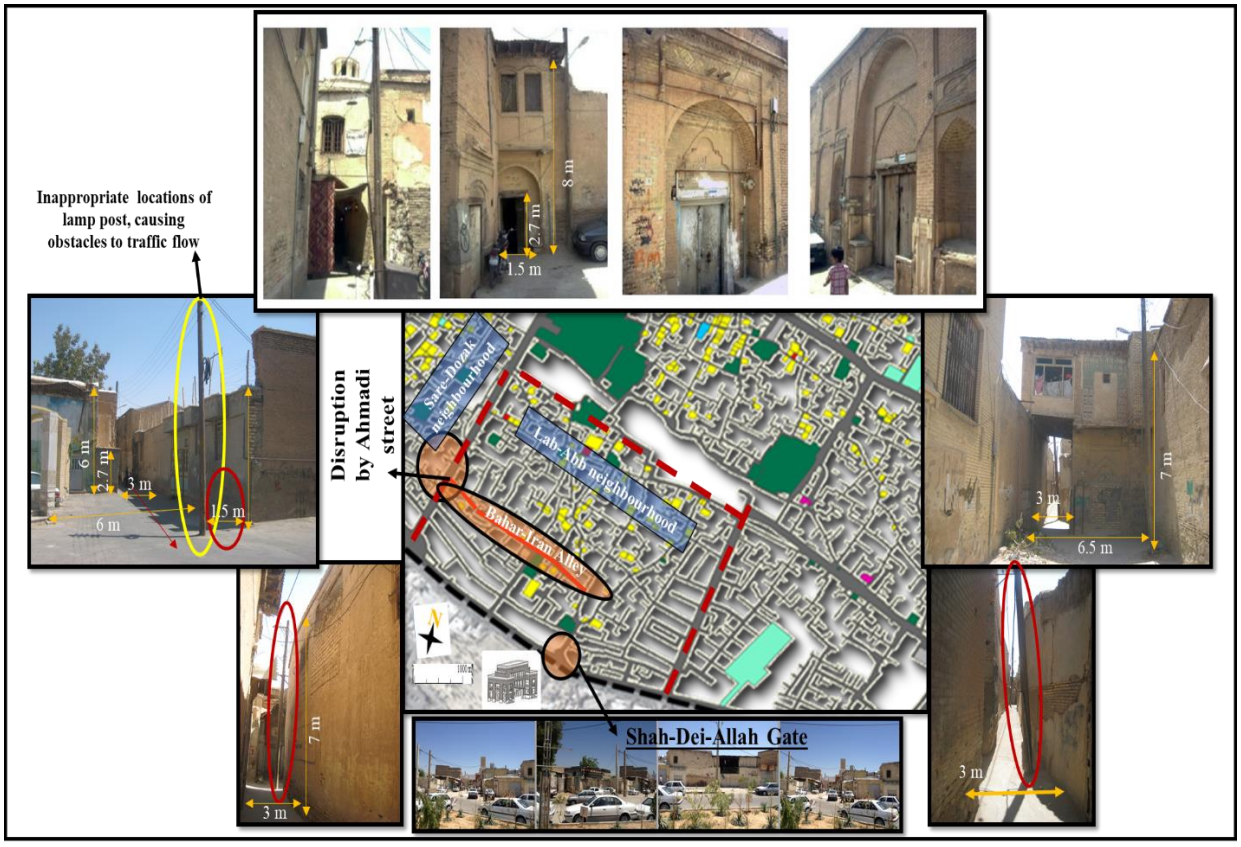

Figure 6. 30 The morphological components in Bagar-Iran Alley within Lab-Abb neighbourhood, (Source: Author based on Municipality data).

6.9.2 Urban design qualities of the passage

Permeability

Map analysis (Figure 6.30) shows that this passage lies in Lab-Abb and Sare-Dozdak neighbourhoods and is the access communication route for these two historic areas. Therefore, it plays an important role in allowing access to pedestrians and vehicles to the central part of Lab-Abb neighbourhood. Also, this passage provides a good model for the rehabilitation of Lab-Abb neighbourhood.

According to the Shiraz Municipality traffic report, this route includes a strong spatial link and continuity with southern localities within the zone of the historic core as well as with two important gates. Therefore, this continuity has been severely reduced with the construction of Ahmadi Street.

Variety of land use and buildings

The passage has a mixed land-use of commercial, religious and residential uses. Historic monuments and houses in the passage zone include Emamzadeh-Ebrahem Shrine (Figure 6.31) and the public baths, from the Qajar era (1789-1925). Likewise, four houses on the route of this passage have been identified as buildings with relatively strong historic values. Therefore, this passage is important regarding other listed buildings having access to this passage.

Figure 6. 31 View from Emamzadeh Ebrahem Shrine complex on Gol-Ashrafi Alley.

The senior experts of Shiraz Municipality's consultant agency (Appendix 1) stated that some historic buildings in this passage, including Emamzadeh-Ebrahem Shrine and the public baths, are valuable listed buildings.

Also, analysis of morphological features reveals that this passage is an important route for vehicles, so several modifications, such as parking lanes, should be made to allow better access for vehicles. The front of Emamzadeh-Ebrahem Shrine is considered the centre of the locality. The remaining parts of this urban area should be modified to create spaces for people to relax, such as the local plaza (regarding height, openings, materials, and colour, and also interaction with wide spaces).

This passage enjoys relatively high visual richness. The quality of spatial variations and contrasts in this path are still recognizable as an organic and historical axis, but at a lower level than in some of the other passages. This axis has some historic value, although its level of special morphological and visual qualities is fairly insignificant (local and traditional colour such as colour of bricks; structural themes in walls, such as repeated Islamic motifs; specific features like sunshades, and architectural decorations, Figure 6.32). Regarding visual, spatial, functional and morphological contrasts, the passage has quite a lot to commend it.

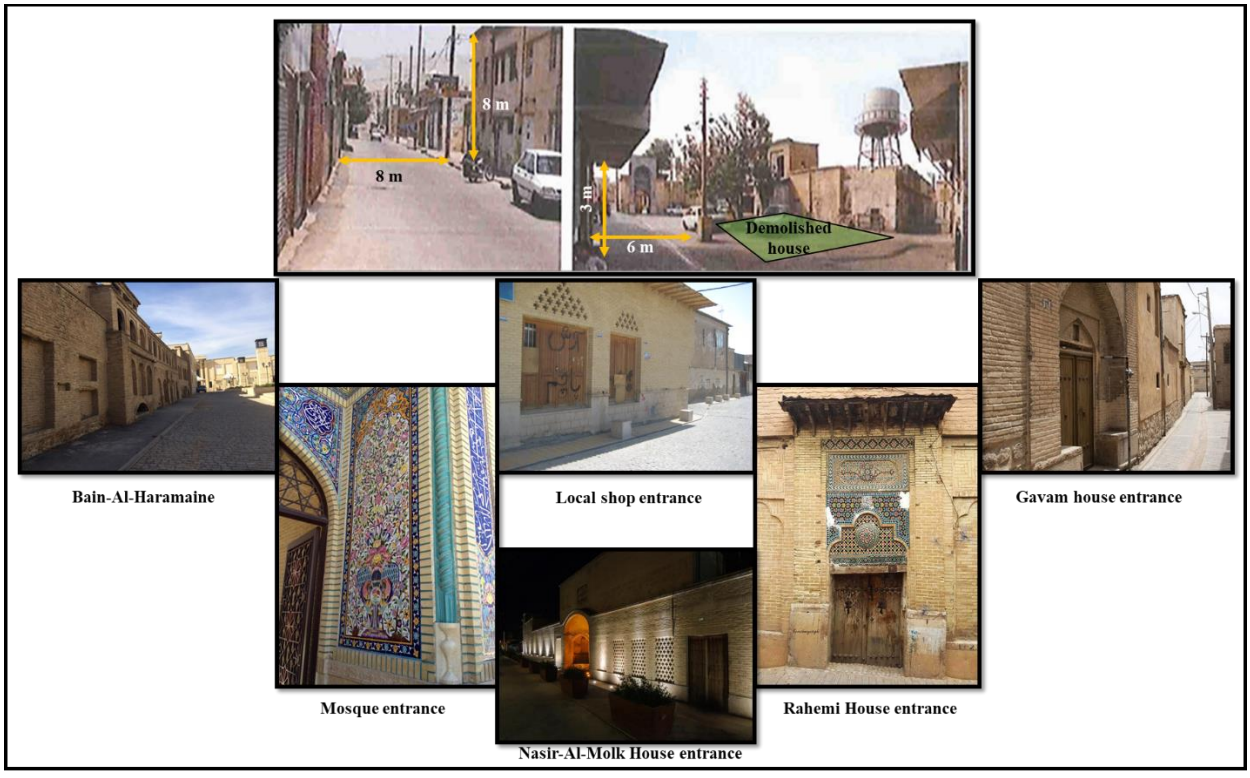

Figure 6. 32 Views of Emamzadeh-Ebrahem Shrine complex and visual qualities.

The wall-to-floor ratio is 1:1 in the eastern zone but this rate is approximately 2:1 as one gets nearer to Ahmadi Street. In general, there is a sense of enclosure within the space of this passage but due to the smaller height of buildings, which are mainly one storey, their enclosure rate is lower in the eastern parts.

Similarly, the width (4-5m) is less than the rate required by Iranian law (minimum 6m), in open space at the front of Emamzadeh-Ebrahem Shrine (a relatively open space due to the presence of parking spaces), and it should be designed in order to improve the aesthetic appeal.

Legibility

This passage is well defined by the existing buildings and functions at the start and finishing points of the axis: Shah-Dayee-Allah Gate or Emamzadeh-Ebrahem Alley at the east and Ahmadi Street in the west. These well-defined start and end points, as well as the notable landmarks like Emamzadeh-Ebrahem Shrine and public baths, contribute to the quality of legibility of this axis. Moreover, this passage forms a fork around the Emamzadeh-Ebrahem Shrine, a local landmark, and includes a space with strong potential to become a centre for local services. Improvement to this space could contribute further to the legibility of the path and improve function and the movement system.

However, from fieldwork observation and comparisons of this passage with other passages, lateral visibility along the passage is at a low level since building frontages are directly on the street. Consequently, there are no pavements, and parking occurs directly in front of the building frontages. This causes low levels of privacy and means that shops' merchandise, vehicles and pedestrians are all using the same space without separate lanes or functional areas.

Resilience

Visual quality in the passage's appearance was identified as one of the foremost issues of damage in the historic fabric. Demolition and erosion of buildings are present. The fundamental problems of the passage are as follows:

- The use of asphalt in the passage causes lack of airflow and moisture exchange and is deemed as a destructive agent in some parts.
- Access to the Shah Dayee Allah and Kazeroon gates, as well as continuity of the route through the passage has been disrupted by the intervention of Ahmadi Street.
- Damage caused by interference from vehicular and pedestrian traffic.
- The level of noise in this passage for residents and passers-by is disruptive and threatens historical monuments.

Figure 6.33 shows areas with potential for improvement and rehabilitation in the passage.

Figure 6. 33 Morphological and spatial capacities and potentials in Emamzadeh-Ebrahem node; (Source: Shiraz Municipality, annotated by Author).

In discussion with the head of the department of Shiraz Housing and Development Ministry (Appendix 1), it was observed that public services have a vital role in this historic neighbourhood. Emamzadeh-Ebrahem Shrine, the public baths and a few commercial locations have public functions. However, it seems that these facilities are not sufficient, and this historic area needs more public services to attract tourists and improve the quality of life for residents.

6.10 Historic passage no.5: Alamdar Alley

Using analysis of maps and fieldwork observations, four main, structural axes with an east-west orientation were identified within this neighbourhood. The endmost southern axis of this group which almost connects both western and eastern edges within the southern zone of this neighbourhood is known as Alamdar Alley. In the old movement system of this historic neighbourhood, one of the main east-west routes within the southern zone started from Ghasab-Khaneh Gate (also known as Astaneh Passage or Sheep Gate) and continued up to Sang-E-Siah Locality in the south-west of the historic fabric. The intersection of this passage with Sang-E-Siah Passage is the western limit of this passage (Figure 6.34).

Figure 6. 34 Situation of Alamdar Alley passage; (Source: Shiraz Municipality, annotated by Author).

As identified in interview with a senior expert of Shiraz City Council (Appendix 1, Question 3 and 11), this passage starts from the eastern side of Balakafd neighbourhood and it passes through Lab-E-Abb, Sardozdak neighbourhood, and Sang-E-Siah neighbourhoods, and is the access route among these historic neighbourhoods. However, it links the eastern side of Balakafd neighbourhood to the core of Sang-E-Siah Locality, which passes through the sub-case study no.1 historical fabric.

The residents of the passage enjoy social activities within the passage. Features attractive to the population include Imam-Ali Mosque, Alamdar Mosque and Siavashan Mosque. Likewise, the presence of caravanserais and passer-by platforms at the entrances of houses may confirm the fact that the passage has been highly significant in the past. The vitality of the passage space increases from east to west of the neighbourhood.

Some of the spaces are susceptible to crime and delinquency but the high volume of people passing by helps to raise the security of the passage; nonetheless, there is an occasional occurrence of antisocial activity in the passage. Consequently, this historic passage may be classified as first-level value regarding valuation and determination of its priority for redevelopment, and it requires the preservation of its role in the pedestrian movement system.

6.10.1 Morphological components of the passage

This passage is typical of part of the route of Bein-Al-Haramein Passage in the historic core network, identified from the map as the continuation of this path leading to Alamdar Alley Passage. Several changes and interventions include adding a pavement and organisation of area at the western side of this passage, namely Siavashan Alley, where this has slightly improved the unfavourable conditions in this historic area. However, this neighbourhood is restricted to vehicular transport (Figure 6.35).

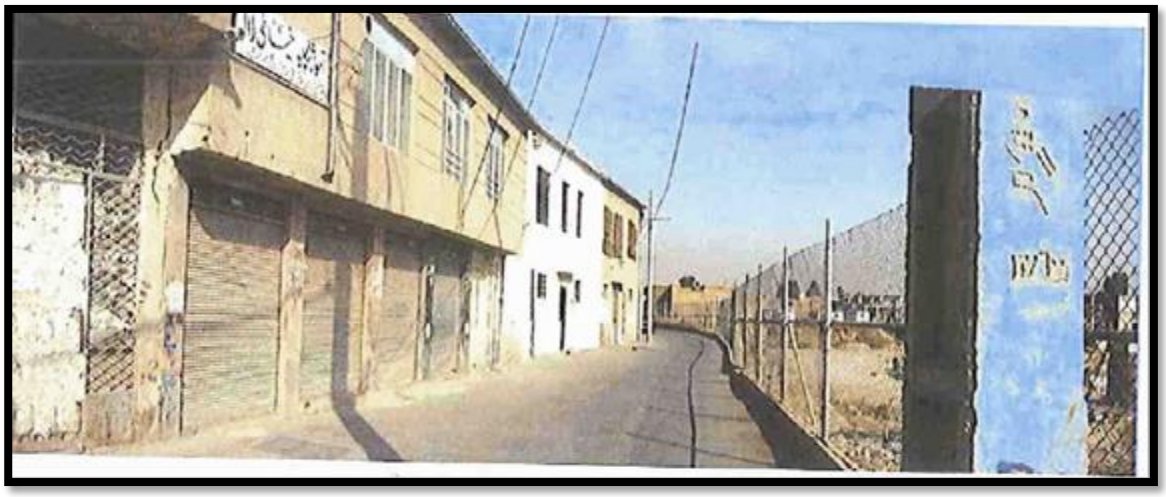

Figure 6. 35 Alamdar Alley Passage in Bein-Al-Haramein zone.

It was stated by both a senior expert of Shiraz City Council and a local community member (Appendix 1) that in the vicinity of Bahar-E-Iran Passage and Gol-Ashrafi Alley there has been a tendency to construct new buildings in a similar style to these passages. Both people stated that part of the northern side is included currently in the Bein-Al-Haramein project, where there is no consistent style. Hence, as one approaches Ahmadi Street there is a pattern of construction of new buildings, leading to the widening of the passage; however, these modifications have not yet changed the morphological identity of the neighbourhood. Therefore, new plots are composed of two large sections, which are visible on both sides of the vertical and parallel plots within the passage (Figure 6.19).

It is placed in an approximate east-west axis of the plots parallel with the passage of the main mass at the west of the plot and vertical plots in the mass in the north. With respect to the general east-west orientation of the passage (Figure 6.32), the dominant pattern is with the building positioned next to the street and adjacent plots arranged in an approximate east-west direction (Rune Esfahan, Persian Urbanism style). Most of the arrangements of the buildings within the old plots of the passage have a U-shape and three-sided form (see Appendix 8) but in newer constructions, the building and yard lie adjacently to each other in a 40-60 rule (see Appendix 8) in which the most common direction is both parallel and perpendicular to the axis (Figure 6.19). Like other organic spaces of historic fabric, there is no definable order in scale or the grading of plots in the passage.

6.10.2 Urban design qualities of the passage

Permeability

During field work observation by the author, it was identified that the discussed axis is a pedestrian passage inaccessible to vehicles. However, senior experts of Shiraz City Council (Appendix 1), stated that vehicular traffic could be allowed in this passage within certain limits, and the passage has sufficient width (6-8m) that no widening or demolition is required. Figure 5.69 of chapter 5 identified that the permeability of this passage to the west is at a sufficient level (as denoted by the red line on the permeability map), whereas from the centre to the eastern part of this passage, the permeability is at a lower (as denoted by the green line on the map).

A representative of the Shiraz Municipality consultancy agency stated that this axis has a strong spatial connection and continuity with southern neighbourhoods in Shiraz historic core. Likewise, it links the zone of Ghasab-Khaneh Gate to the valuable central zone of Shiraz historic fabric, and it is also deemed as part of the Bein-Al-Haramein geographical zone. However, despite the contemporary developments in this area (the development of the Shrine and widening of Ahmadi Street etc.), the spatial continuity with elements of the central zone is relatively diminished. Therefore, there is no connection between Ahmadi Street and the passage. Spatial continuity with central elements at present will be affected by the quality of the Bein-Al-Haramein Project, one of the important issues concerned with the rehabilitation process (Figure 6.34).

Variety of land use and buildings

The passage has commercial, religious and residential land-uses. The level of variation and of spatial contrast may be still recognized as an organic and historical axis in this path. Due to the demolition of some buildings along the passage to the north (as seen in Figure 6.35), the passage has changed in terms of variety and land-use, becoming increasingly commercial, where previously it was residential, due to the construction of Bein-Al-Haramein mall. This axis is placed at a relatively appropriate level with regard to specific morphological and visual qualities (colour, local and traditional structural themes in walls, special elements like sunshades and architectural decorations), especially in unchanged parts. The visual scenes, spatial and morphological contrasts, organic nature and logical sequences of distinctive use of this passage are of a relatively high quality.

According to a representative of Shiraz Municipality, this passage was specifically designed with pedestrian spatial proportions. The wall-to-floor ratio in this passage is approximately 2:1 overall. However, due to the pending morphological development plan and widening, many parts of the passage (from Ahmadi Street and a small part of the western passage zone) no longer provide a sense of spatial enclosure. However, there is a full sense of enclosure through most of the passage.

The numerous listed architectural monuments are the subject of preservation orders and mean that buildings need to be treated sensitively in this pedestrianised passage.

Legibility

Fieldwork observation and Figure 6.36 identifies that this passage possesses a large number of distinctive features gathered in the same place. Part of this passage is aligned with the southern edge of Bein-Al-Haramein project and Shah-Cheragh development plan.

Space Syntax analysis (Figure 5.69) shows that this passage is well-defined by the notable landmarks at the starting and finishing points of the axis (Astaneh Square, Bein-Al-Haramein Complex, and Ahmadi Street). This definition and the presence of distinct spaces and uses like Agha-Lor Mosque and Alamdar Mosque, Zoghaliha Caravanserai and Siavashan Mosque, contribute to the quality of legibility of this axis. Similarly, this passage enjoys high visual influence.

Analysis of maps and reports from the Iranian Cultural Heritage Organization (Appendix 1), revealed that some of the most valuable historical monuments and houses within sub-case study no.1 are, Alamdar Mosque, Agha-Lar Mosque, Zoghaliha Caravanserai, Emam-Ali Mosque (Figure 6.36).

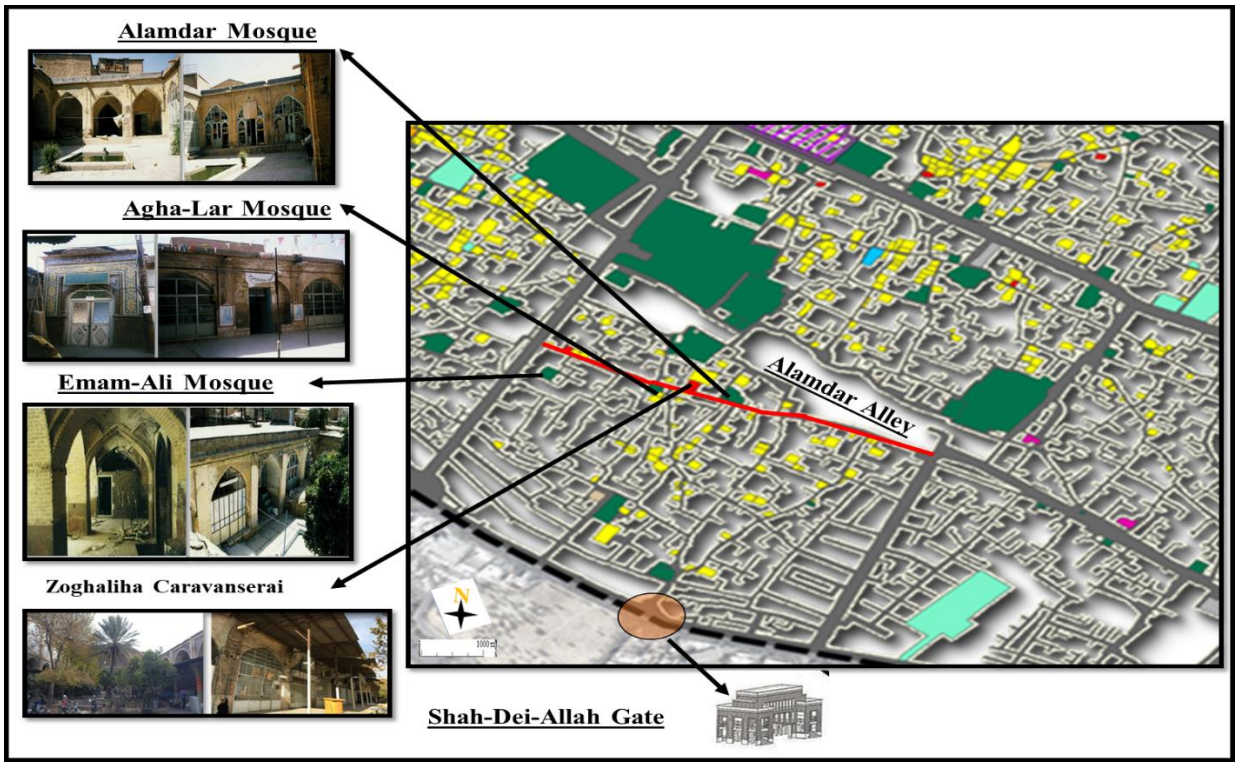

Figure 6. 36 Notable landmarks that affected the formation of Alamdar Alley within Lab-Abb Neighbourhood; (Source: Author).

Several other historical valuable houses and buildings are also located within the historic zone of this passage. Therefore, this passage is used as an access route for a number of famous and historic houses: Kazeronian House, Sadeghinejad House, Pishevari House and Parsaei House (Figure 6.37).

Figure 6. 37 The famous and historic houses in Lab-Abb neighbourhood, (Source: Author based on Cultural Heritage, Handicrafts and Tourism Organization of Iran).

The deputy responsible for deteriorated fabric in Shiraz Municipality (Appendix 1) stated that lateral visibility along the passage on the eastern side is lower than most other similar cases as it winds from side to side a great deal. This factor, along with the culture of privacy, means that most building frontages are placed further back from the passage with few windows facing the street. This situation differs as one move further west, where the presence of commercial premises means that the passage is straighter. This passage enjoys a relatively high rate of lateral visibility on the western side.

Resilience

Visual pollution, demolition, erosion, and the decay of materials of which buildings are constructed are more apparent in this passage than others in Lab-Abb neighbourhood. The fundamental issues of this passage can be categorized as follows:

- The use of asphalt in the passage causes lack of air circulation and moisture exchange, which is destructive, especially on elevated sections of the passage.
- Damage caused by motorcycles.
- Damage from noise pollution and vibrations from trade in this passage disrupt residents and threaten the fabric of historic buildings.
- Most listed buildings in this passage have suffered some form of damage.

Since the passage is inaccessible to vehicles, provision of parking spaces for residents should be addressed. The reasons for keeping the zone pedestrianised are as follows:

Reasons for keeping Alamdar Alley pedestrianised
Analysis of the role and function of the passage in the movement system and access, particularly of pedestrian movements (both individual and collective)
The important role of the connection of pedestrians around Ghasab-Khaneh Gate at the south-eastern edge of the neighbourhood and the valuable central zone, as well as in the south-western area of the neighbourhood and Sang-E-Siah locality.
Valuable morphological and spatial qualities and features in the passage
Specific listed features e.g. caravanserais, embody the important role of this passage in the former movement system in the historic fabric.
The creation of a connection between the historic gardens at the southern and western sides of Lab-Abb neighbourhood is deemed as having development potential and capacities in this passage may be realised through a green axis with specific dimensions.

Table 6. 16 Reasons for keeping Alamdar Alley pedestrianised.

An interview with a representative of Shiraz Historic Council (Appendix 1) identified three points in this passage as potential centres for local services. First is the intersection between Alamdar Alley Passage with Emamzadeh-Ebrahem Alley. There are public services such as a mall and the Aghalor Mosque is located at this point. Second is the intersection of this passage with Afshar Alley. The passages are aligned with each other at this point, and there is religious use at this intersection. Third is the intersection with Sang-E-Siah passage in which there is spatial potential.

All of these are at intersections with historical passages through the path of Alamdar passage and are considered local service centres (Figure 6.38).

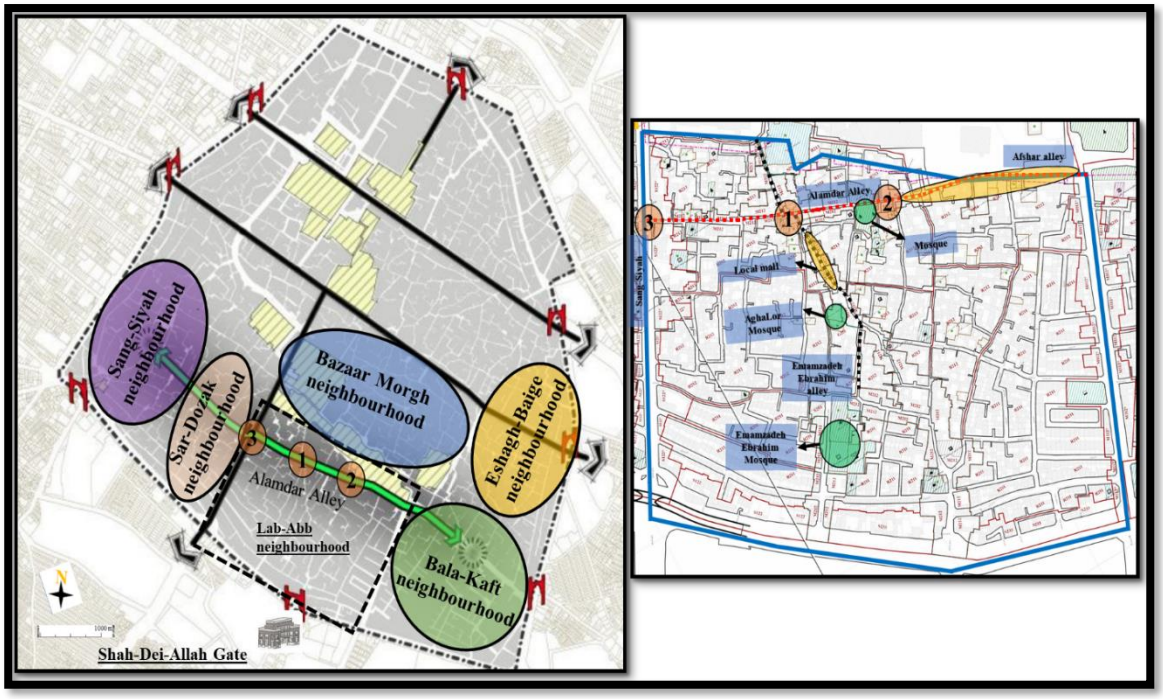

Figure 6. 38 Location of three key points in Alamdar passage as potential centres for local services, (Source; Author based om Shiraz Municipality data).

6.11 Historic passage no.11: Boghiriha Alley

Map analysis reveals that this passage is located at the southern zone of the Shiraz historic core and is situated in the Lab-Abb neighbourhood as well as in Moordestan neighbourhood that is connected to Prince (Shah-Zdeh) Gate. This passage is bordered at the north by the Bein-Al-Haramein Project and at the south by the Shah-Dayee Allah Gate (Figure 6.39).

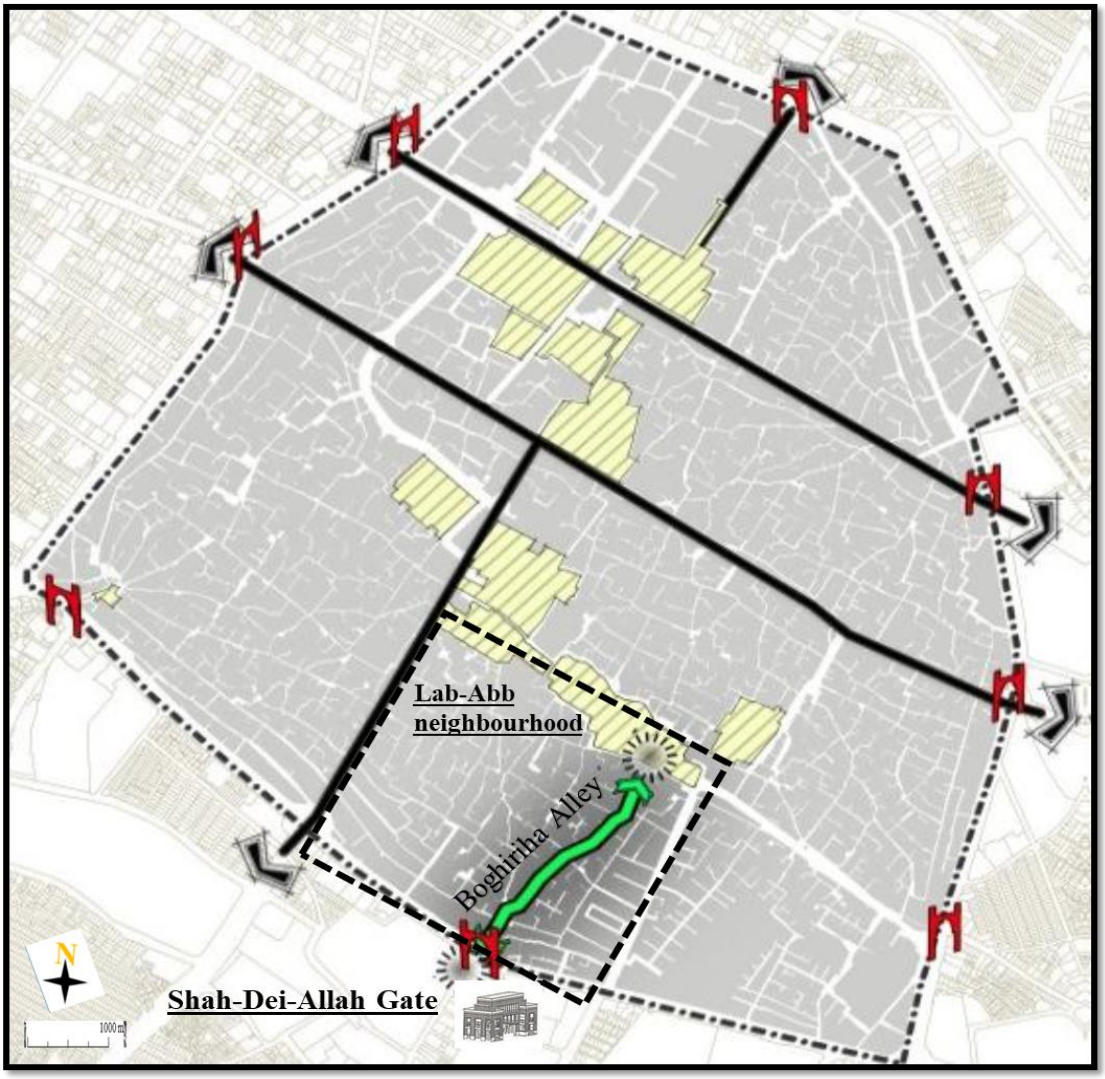

Figure 6. 39 Boghiriha Passage in Lab-Abb neighbourhood; (Source: Author based on Shiraz Municipality data).

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Figure 6. 40 Discontinuity of the path of Baghiriha Alley passage; (Source: Shiraz Municipality anotated by Author).

6.11.1 Morphological components of the passage

The passage's orientation is predominantly from north-east to southwest (aligned with ancient Persian urban rectangular design). However, the path in this passage is not as winding as other historical passages. The morphological patterns of plots (Appendix 8) in this area are completely different on either side of the passage and new plot patterns based on the 40-60 rule are also visible, which are perpendicular and parallel to the passage in both directions. The morphological changes in the northern zone of this passage have so disturbed the morphological patterns that this passage is considered the boundary of morphological changes (Figure 6.40). A large amount of change is seen on the eastern side, while the old pattern of buildings is visible on the western side of the passage (Figure 6.41).

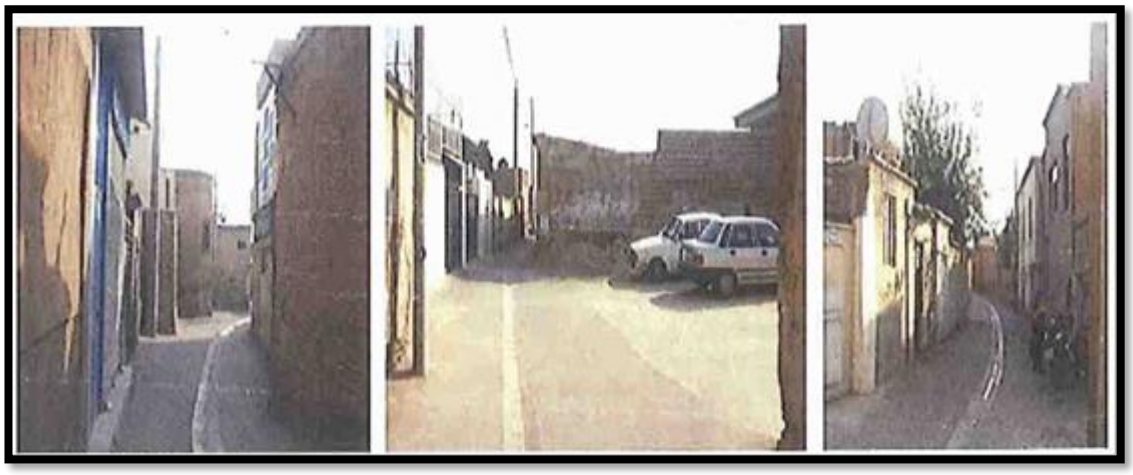

Figure 6. 41 Sequence of spaces in Boghiriha Alley.

The function of this passage has been affected by contemporary development interventions in this historic area. The greatest feature of this passage in the movement system was the direct connection between northern and southern edges of Shiraz's historic core that was formed in parallel with the market axis towards the east. Today, no trace remains of the original spatial organisation and movement system of the passage.

6.11.2 Urban design qualities of the passage

Permeability

Analysis of Figure 6.34 identifies that this passage is not continuous due to recent changes in Bein-al-Haramein area (between two shrines). The remaining part of this passage runs parallel to the Vakhil Bazaar axis, and has valuable historic buildings, which can be categorised as Grade-2 and Grade-3 valuable buildings (as shown in Figure 6.22, valuable historic buildings).

Variety of land use and buildings

The land use of the passage is religious, commercial and residential. Observations of the functionality of this passage show that the ratio of street elevation compared to the ratio of the street surface in this historic passage is slightly different from the other passages. Due to the relatively wide streets (8-10m) and the low height of street bodies, which are mainly single storey, there is little sense of enclosure.

Legibility

From analysis of the map and the explanation of Shiraz City Council (Appendix 1), it was recognised that this passage has some of the most valuable components in Shiraz's historic core and in sub-case study no.1. Valuable buildings located in the passage can be classified in two classes of listed monuments grades 2 and 3 (Figure 6.42).

- Grade 2 listed buildings: House of Javad Sedaghatnejad
- Grade 3 listed buildings: Houses of Mostafa Ouji and Behnamnia etc.

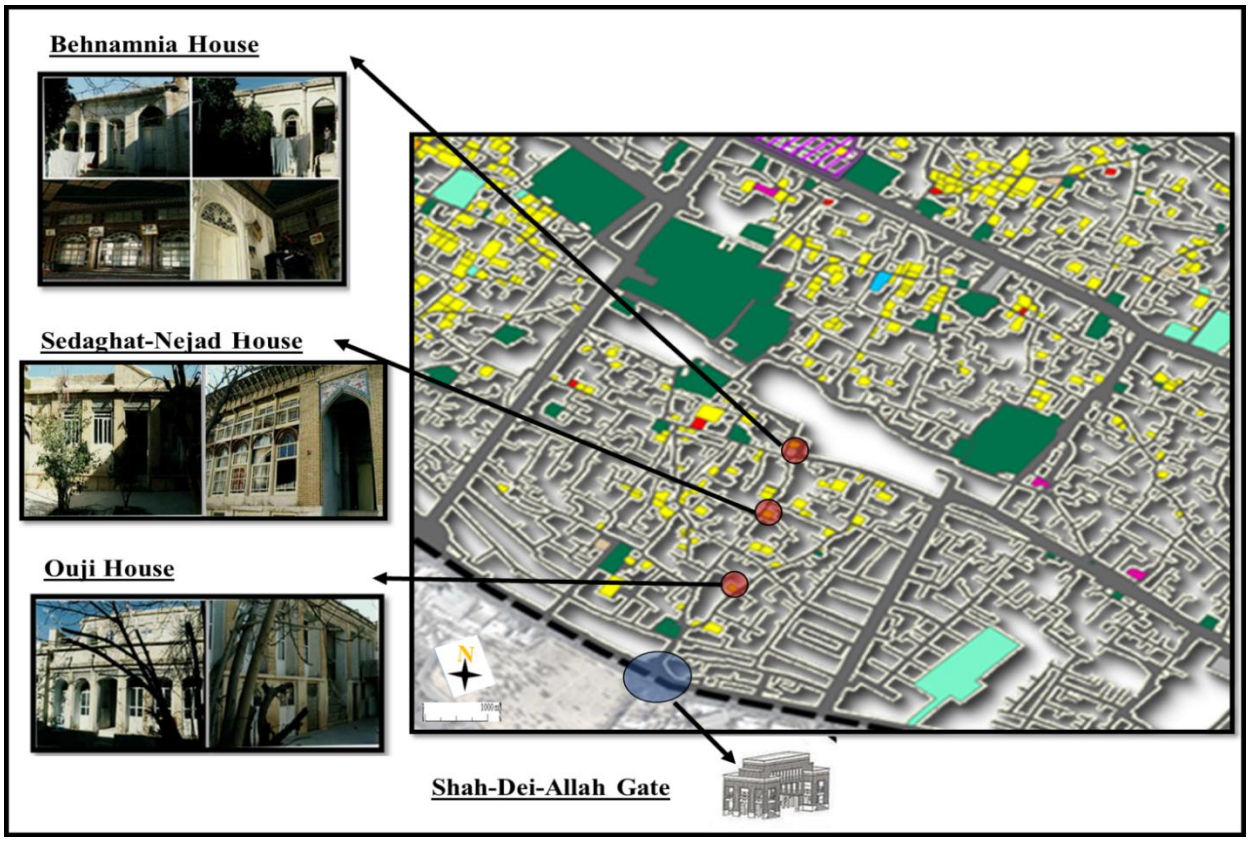

Figure 6.42 The valuable buildings located in Boghiriha Alley; (Source: Author).

The distinct symbolic and historic uses contribute to raising the quality of legibility in this passage. However, overall, this passage has a relatively low degree of legibility.

Resilience

Fieldwork analysis identified that this passage lacks water ditches and channels to discharge ground wastewater at some points, especially in the southern parts. Likewise, dilapidated manholes for urban wastewater are a recognised problem throughout this passage.

The problem of demolition, erosion, the deterioration of buildings' materials and visual pollution are very obvious. The passage's strategic and fundamental problems are as follows:

- Poor drainage within the passage causing a lack of air circulation for moisture exchange.
- Inconsistency between the appearance of the new buildings and the visual identity of the historic fabric has destroyed visual coherence in some parts of this passage (Figure 6.35).
- Disturbance in the movement system and passage access: discontinuity in this historical passage due to the construction of Bein-Al -Haramein mall has disrupted the connectivity between this neighbourhood and other neighbourhoods to the north. This hinders access for residents to the mosque and bazaar.

Observation by the author identified that most of the listed monuments in this passage have been the subject of some damage and need restoration and reconstruction. Due to the conversion of this passage to a vehicular access route, conservation of a pedestrian route is less vital than in grade 1 listed passages. This is confirmed by the lack of continuity of the route and the irreversible damage to the movement system. The buildings are deteriorated and damaged in this passage and due to the restrictions on valuable buildings, restoration and reconstruction interventions may be implemented with care to follow legislative procedure. Regarding its possession of collective spaces, this passage does not contain any special qualities or preference. However, this historic passage is ranked as level 2 value and this determines its priority for redevelopment.

Plot pattern:

The plots were analysed in terms of typology, dimensions and arrangement within the blocks. This information and analysis can be seen in Appendix 8 of this research.

Building structure:

In both sub-case studies, the buildings, alleys and passages are designed according to the hot, desert climate; consequently, the alleys are built with high walls to give shade from the sun. Buildings are also constructed with orientation that gives maximum airflow and often contain courtyards in the middle to allow private spaces shaped around pools and gardens to provide shade and cool the air (Figure 6.43).

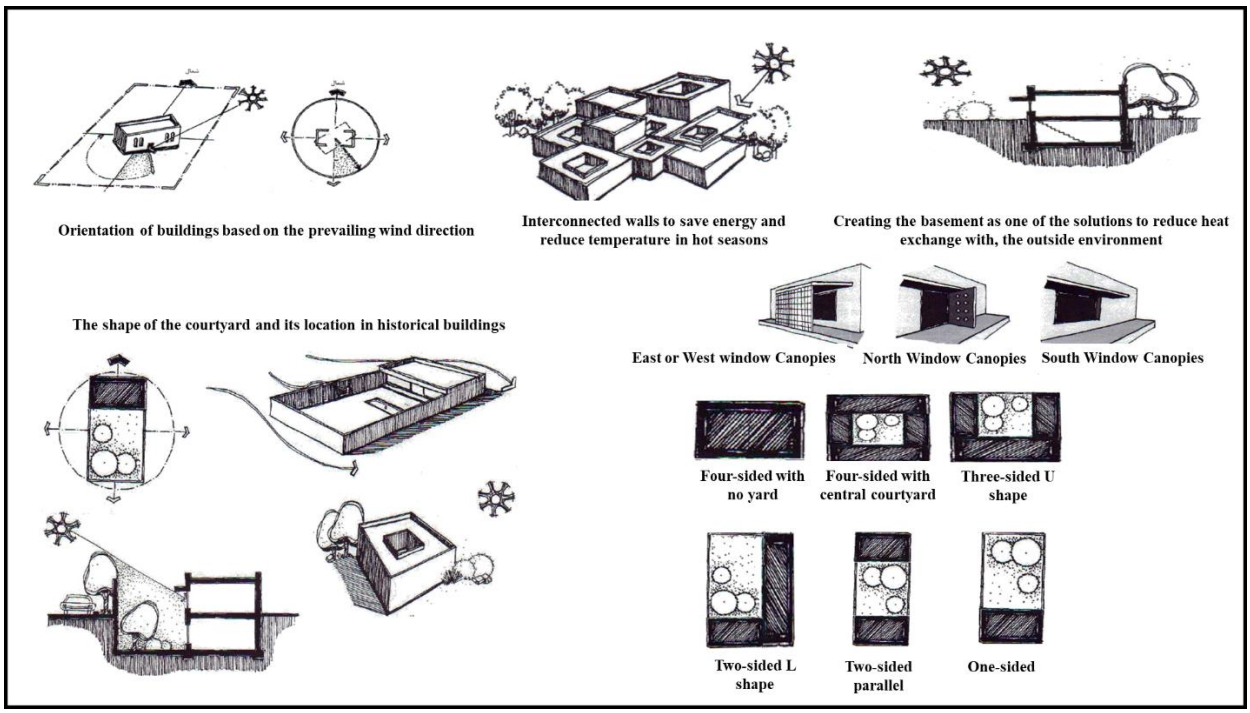

Figure 6. 43 Shows the building structure in Shiraz historic fabric, (Source: Author based on Shiraz Municipality data).

The organic nature of the formation in this axis increases the level of comfort and reduces traffic noise, due to the minimum opening in passages. The rest platform outside the houses is another factor that provides comfort for inhabitants in this neighbourhood. Further details about the building typology can be seen in Appendix 8 of this research.

Building details:

An investigation into these historic neighbourhoods revealed that most buildings have been constructed with local materials and soil extracted by excavation of ditches around the city. For this reason, this part of the city presents a unified appearance. The foundations of houses were constructed of stone and the walls made with bricks covered with thatch and plastered with mud (Figure 6.44).

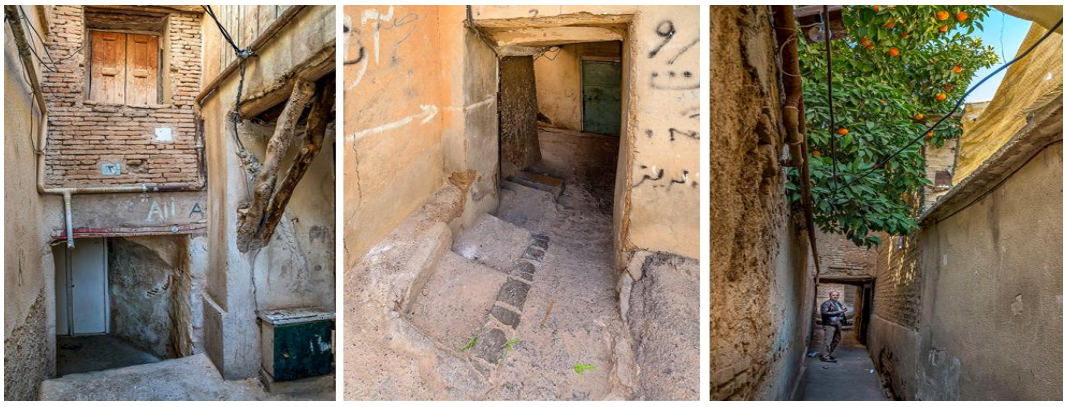

Figure 6. 44 The usage of different local materials for building houses in sub-case study one.

A local community representative (Appendix1) stated that many inhabitants of the historic core share a particular culture, which is seen in the design of the passages through the details and decorations within the interior walls of these constructions. This, therefore, forms a strong part of the residents' identity and possesses heritage value. Consequently, every effort should be made to preserve and maintain them.

6.12 Conclusion to physical form

As stated in previous chapters, residents of Iranian historic cities have a strong desire for privacy, which led traditional neighbourhoods to evolve into two main sections: public and private. After reviewing several Iranian historic urban patterns, it was found that a model of access system within the historic neighbourhoods can be devised utilising all elements of the traffic network. From analysis of sub-case study no.1 it was also discovered that streets and passages played a key role in the process of forming and shaping this historic neighbourhood. Hence, according to analysis of passages in sub-case study no.1, their different aspects and their various functions may be categorized as follows:

Findings regarding passages in Lab-Abb neighbourhood	Recommendations regarding passages in Lab-Abb neighbourhood
The passages are unique in historical character	Repair of the passages' elevations and flooring
The passages are unique in how they link different components in the context of their neighbourhood.	Redesign some of the passages' walls
The passages have special socio-cultural and religious value.	Improve the quality of urban services
The passages play a key role in improving residents' quality of life	Design street furniture in harmony with the environment
	Redesign the lighting of these passages
	Improve urban safety
	Improve the surface water and sewage disposal system

Table 6.17 Findings regarding passages in Lab-Abb neighbourhood

Therefore, it can be concluded that passages have a key role to play in shaping and forming historic sub-case study no.1 and play a key role in the process of rehabilitation of this historic neighbourhood.

6.13 SWOB analysis of Urban policies, socio-culture and physical form

According to the conceptual framework, one of the important factors with a significant influence on rehabilitation of historic cities were religion and urban development policies. Hence, based on information collected in fieldwork study and subjected to SWOB analysis, Table 6.18 presents the findings of this investigation, as follows:

Urban Policies	
Strengths	• Existence of some public participation in managing urban affairs • Increasing attention being given to environmental and historic-cultural aspects • Development of a programme of urban development from the municipality and definition of strategies and objectives of management at national level
Weaknesses	• Lack of appropriate mechanisms and procedures for communicating with residents • Lack of interactions and communication between the Municipality, City Council and community leaders. • Existence of severe administrative bureaucracy • Lack of adequate equipment and urban facilities in order to implement infrastructure projects and urban services • Lack of inter-sectorial management for identification and implementation of projects and development plans at neighbourhood level • Inadequacy of existing management structure
Opportunities	• Provision of financial resources required for rehabilitation under current legal mechanisms • Tendency of urban management system to support rehabilitation efforts in this neighbourhood
Barriers	• Distrust of residents in management system and reluctance to participate in rehabilitation of the historic fabric • Lack of transparency in existing rules • Lack of promotion of participation of residents in rehabilitation of the historic fabric

Table 6.18 Lab-Abb SWOB analysis regarding urban policies.

Table 6.19 presents the SWOB analysis results regarding socio-cultural and economic activity based on interviews and questionnaire collected in the field work study.

Socio-Cultural and Economic aspects	
Strengths	• Presence of long-standing noble residents with a sense of community identity • Existence of religious charitable organisations and foundations in this neighbourhood • Growing literacy levels in the community • Existence of traditional support systems in this neighbourhood
Weaknesses	• Unusual socio-cultural mix with low-income residents unable to contribute financially to rehabilitation • Imbalance between males and females in the neighbourhood • Depreciation of residences due to anti-social activities in the neighbourhood • Out-migration of original inhabitants in the neighbourhood, alongside in-migration of people from other countries and cities, leading to loss of cultural identity • High proportions of black-market employment, due to low literacy and skill levels • High rates of rental properties, leading to a transient population and lower sense of commitment to the area and consequently less participation in social activities and rehabilitation
Opportunities	• Potential for creation of commercial centres in this neighbourhood to increase economic development • Potential of architecturally valuable elements to attract revenue from tourism • Potential for creation of jobs in tourism • Tendency of public organisations to invest in this neighbourhood
Barriers	• Falling population rates in this neighbourhood due to anti-social activities and negative feelings towards immigrants • Increase in criminal activity in this neighbourhood • Lack of coordination between investment opportunities and rehabilitation needs of the neighbourhood

Table 6. 19 Lab-Abb SWOB analysis regarding Socio-Cultural & Economic Dimensions.

Table 6.20 presents the physical strengths, weaknesses, opportunities and threats of sub-case study no.1, as follows:

Physical aspects	
Strengths	• Existence of houses with architecturally valuable elements • Existence of important urban monuments to preserve cultural identity of residents and neighbourhood • Adaptive re-use of abandoned houses to become urban service centres
Weaknesses	• Severe exhaustion of buildings • Vulnerability of houses in the event of an earthquake • Lack of green spaces in the neighbourhood • Lack of cultural and entertainment centres • Lack of educational and sports facilities • Lack of provision for waste disposal • Existence of high groundwater level and inadequate drainage systems • Existence of insecure spaces in the neighbourhood • High density of households • Reluctance of residents to renovate/repair buildings • Unsuitable aggregation of buildings and their multiple ownership which impedes renovation, reconstruction and repair
Opportunities	• Tendency of Municipality and City Council to promote rehabilitation in the neighbourhood • Willingness of residents to modernise buildings • Potential for motivation of residents to repair physical fabric to revitalise cultural and neighbourhood identity • Potential to strengthen public transport system and pedestrian axes in the central part of this neighbourhood • Potential to develop local shops along the main axes of the neighbourhood
Barriers	• Violation of rules and projects previously approved by the City Council • Continuing unplanned development, especially in the outer edges of the neighbourhood • Sporadic construction in the neighbourhood, undermining the integral architectural patterns of the neighbourhood • Prohibition of measures that would encourage active protection in the neighbourhood

Table 6. 17 Lab-Abb SWOB analysis with regard to Physical dimensions.

Conclusion

In the introduction of this chapter, two questions were asked. The aim of this chapter was to find the answer to those questions, as follows:

"How do religion, politics and economics affect the urban form at a (macro and) micro level?"

"How can a rehabilitation approach improve both the socio-cultural environment and physical form at a micro level?"

To answer the first question, it was identified that key factors such as the economy, religion and politics affect the formation and transformation of this area. Two existing famous mosques, a religious school, an entrance gate and its complex buildings and, also, local shops and small bazaars are evidence of how these factors influenced the formation of this historic neighbourhood.

To answer the second question, it was identified based on the SWOB analysis that participation of residents in rehabilitation of the historic fabric could improve both the socio-cultural environment and physical form. On a socio-cultural level, participation can improve: community interaction; skills of the residents, which in turn can improve their literacy and employability and therefore has the potential to improve their livelihood, and the residents' sense of cultural identity. On a physical level, participation in rehabilitation can improve the quality of the urban fabric and protect buildings and monuments from further damage.

According to the above explanations and based on RADAR analysis related to the answer of residents to the questionnaire, the importance of each key factor for the rehabilitation in Lab-Abb neighbourhood was identified. Figure 6.45 shows the priority of each of those key elements in the process of rehabilitation with attention to the current situation of sub-case study 1 in Shiraz's historic fabric.

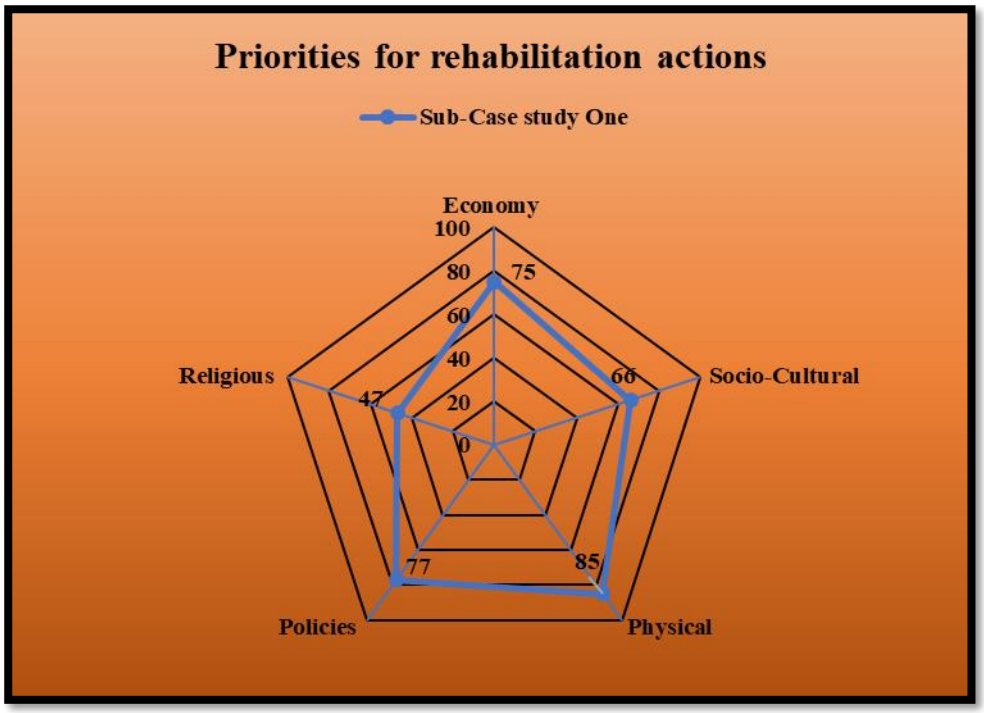

Figure 6. 45 The priority of each key factor in the rehabilitation process in Lab-Abb neighbourhood.

The numbers on the RADAR analysis chart are derived from the questionnaires answered by residents of Lab-Abb neighbourhood. They were asked about their satisfaction with different aspects of the neighbourhood and the results were analysed to show the percentages of residents who felt that there was a need for intervention in each aspect. The above analysis shows that 80% of residents surveyed were dissatisfied with the physical form, and therefore this has the highest priority for intervention. Politics is the next highest priority at 77% dissatisfaction, economics has third priority (75% dissatisfaction) etc. This helps this research to develop a rehabilitation strategy, based on the consideration of these priorities at neighbourhood level. This pattern of analysis can be applied to other neighbourhoods in Shiraz historic fabric to find the priorities of each key factor of rehabilitation in each neighbourhood, and then a macro-level rehabilitation strategy can be developed.

Finally, the following chapter attempts to analyse the second sub-case study based on the conceptual framework and conclusion of Chapter 6. Sub-case study 2 differs from Lab-Abb in having important religious and commercial factors, with some residential land use. It is located in the centre of the historic core of Shiraz. All these different aspects taken together are the main reason for examining this neighbourhood: to find the best strategic plan for the rehabilitation of Shiraz's historic fabric.

Chapter Seven: Bazaar-Morgh, Shah-Cheragh and Eshagh-Baigh Neighbourhood; Sub-Case Study Two micro analysis

Introduction

This chapter, like Chapter 6, uses the factors described in Chapter 3 which shape Iranian cities, alongside the integrated conceptual framework to analyse the strengths, weaknesses, opportunities and threats on the quality of urban areas. This chapter examines the second sub-case study neighbourhood.

The second case study, Bazaar-Morgh, Shah-Cheragh and Eshagh-Baigh neighbourhood, a historic district in the centre of Shiraz's historic zone with a population of 4989 (Figure 7.1), was chosen as a result of the space syntax analysis presented in Chapter 5, section 5.8, which identified that this neighbourhood is one of two areas which have lower levels of permeability, connectivity and legibility than the rest of the historic core, therefore would be a suitable candidate for a rehabilitation scheme.

As stated in Chapter 4 (section 4.3), this chapter will use qualitative and quantitative methods for the collection and analysis of the information within sub-case studies based on primary data collected during the fieldwork period. Table 7.1 demonstrates the structure of this chapter, the methods of analysis and the data sources in relation to rehabilitation of Shiraz's historic neighbourhoods.

<table>
<tr><th colspan="5">Analysis topic</th><th>Methods and techniques of analysis</th><th>Sources</th></tr>
<tr><td rowspan="10">Analysis of the effect of the key rehabilitation factors in the formation of the neighbourhood</td><td colspan="4">Locational Analysis</td><td>Documentary Ref</td><td>Maps</td></tr>
<tr><td colspan="4">Historical analysis</td><td>Documentary Ref</td><td>Data from books, Maps,</td></tr>
<tr><td colspan="4">Effect of religion on physical form</td><td rowspan="4">Government reports, Questionnaires, Survey, Interviews , Livelihood theory</td><td rowspan="4">Table/ Graph/ Bar Chart/ Documents/ Law/ Regulations</td></tr>
<tr><td colspan="4">Effect of politics on physical form</td></tr>
<tr><td colspan="4">Effect of economics on physical form</td></tr>
<tr><td colspan="4">Effect of socio-culture on physical form</td></tr>
<tr><td rowspan="4">Physical form</td><td rowspan="4">Morphological analysis & Urban Design analysis</td><td colspan="2">Land use pattern</td><td>Morphological analysis</td><td rowspan="4">Maps/ Photographs/ Drawings/ Reports/ Measurements</td></tr>
<tr><td rowspan="2">Street pattern and open spaces/ Block and plot pattern</td><td>Layout (Passage analysis)/ Permeability, legibility, Variety, Resilience</td><td>Figures/Ground analysis Linkage theory/ Traffic & Transportation survey</td></tr>
<tr><td>Transport infrastructure</td><td>Lynch analysis</td></tr>
<tr><td>Building structure Building Details</td><td>Architectural evaluation</td><td>Site survey Interview reports</td></tr>
</table>

Table 7. 1 Data analysis structure and data sources

Sub-case study two contains a combination of three neighbourhoods, based on historical municipality divisions they were known as zones 1, 3 and 8 and are located in the centre of Shiraz historic fabric. Zone 1 (Shah-Cheragh), part of Zone 3 (Bazaar-Morgh) and part of Zone 8 (Eshagh-Baigh) were merged in 2012 and are connected to zones 9, 10 and 11. Figure 7.1 shows the location of these zones within Shiraz historic fabric.

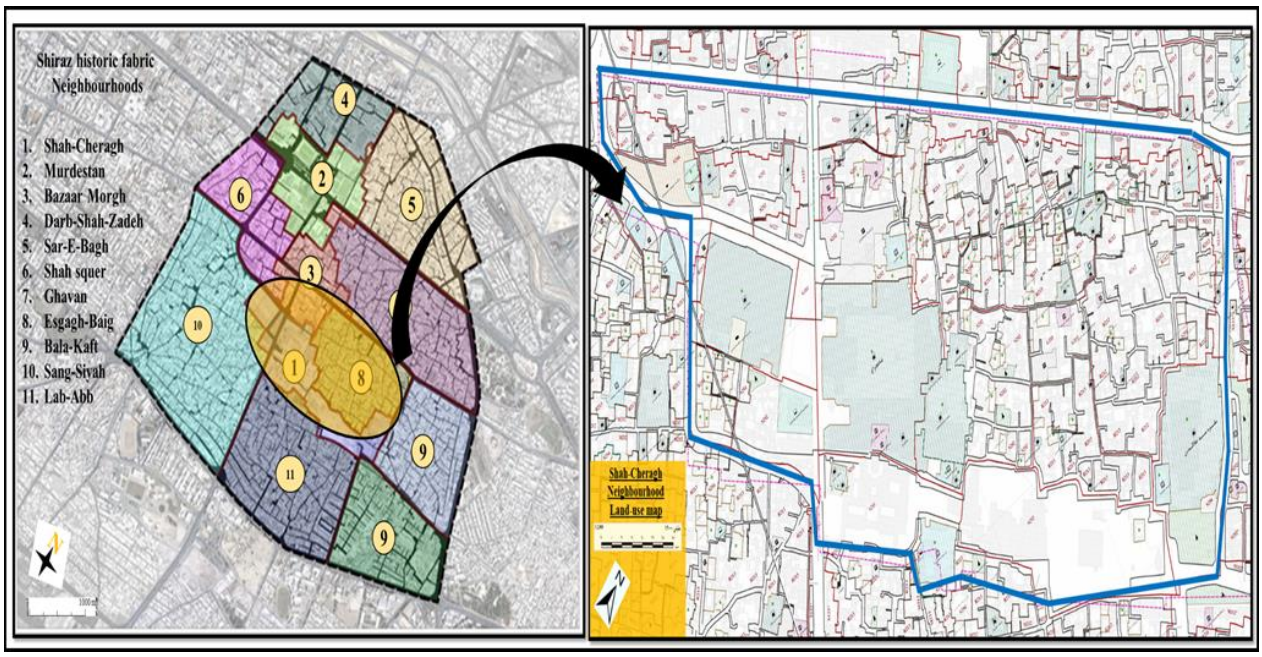

Figure 7. 1 Sub-case study two, the boundary of Shah-Cheragh neighbourhood; (Source: Author based on Shiraz Municipality data).

As with Chapter 6, the neighbourhood will be analysed by investigating the following research questions:

"How do religion, politics and economics affect the urban form at (macro and) micro level?"

"How can a rehabilitation approach improve both the socio-cultural environment and physical form at micro level?"

Consequently, this chapter, uses the conceptual framework to identify the correlation between key factors that can influence the rehabilitation process in Shiraz's historic fabric. Figure 6.2 in Chapter 6 shows these connections and their importance.

This chapter will refer to neighbourhoods 1, 3 and 8 as Zone 2. This sub-case study has great importance in terms of religion and commercial use, due to the presence of grand mosques and the old bazaar. This sub-case study also has a residential zone in the east, which contains many historic buildings and monuments. Therefore, although all five key aspects of rehabilitation are discussed in this chapter, religion, economics and socio-culture are discussed in greater depth. The data collected for sub-case study two is shown in Table 7.2.

Physical factors	Socio-Cultural factors	Economic factors
Morphological and urban formation	Immigration	Economic pattern in historic neighbourhood
Urban organic structure	Education & Occupation	Business activities & Livelihood
Urban design qualities (Permeability, Legibility, Variety and Resilience)	Residents age range	Land & Property values
Security and urban spaces	Duration of living in the neighbourhood	Income, savings, credits and living costs
Privacy and urban spaces	Quality of urban services	Cost of renewing, repairing and improving houses and urban areas
Climate and urban pattern	Security of urban spaces	Loans and bank interest rate
Local materials and houses	Participation in the rehabilitation program in historic neighbourhoods	
Comfort		

Table 7. 2 Relevant categories from micro analysis section in Chapter Seven for collecting and analysing relevant data.

This chapter uses SWOB and GIS analysis, as well as RADAR analysis, to show the factors which should be prioritised in the development of a rehabilitation strategy. The RADAR graph is presented at the end of this chapter and is compared with the same analysis from sub-case study one. Figure 7.2 shows an example of data analysis and the correlation between the key factors for the rehabilitation of Shiraz's historic neighbourhoods.

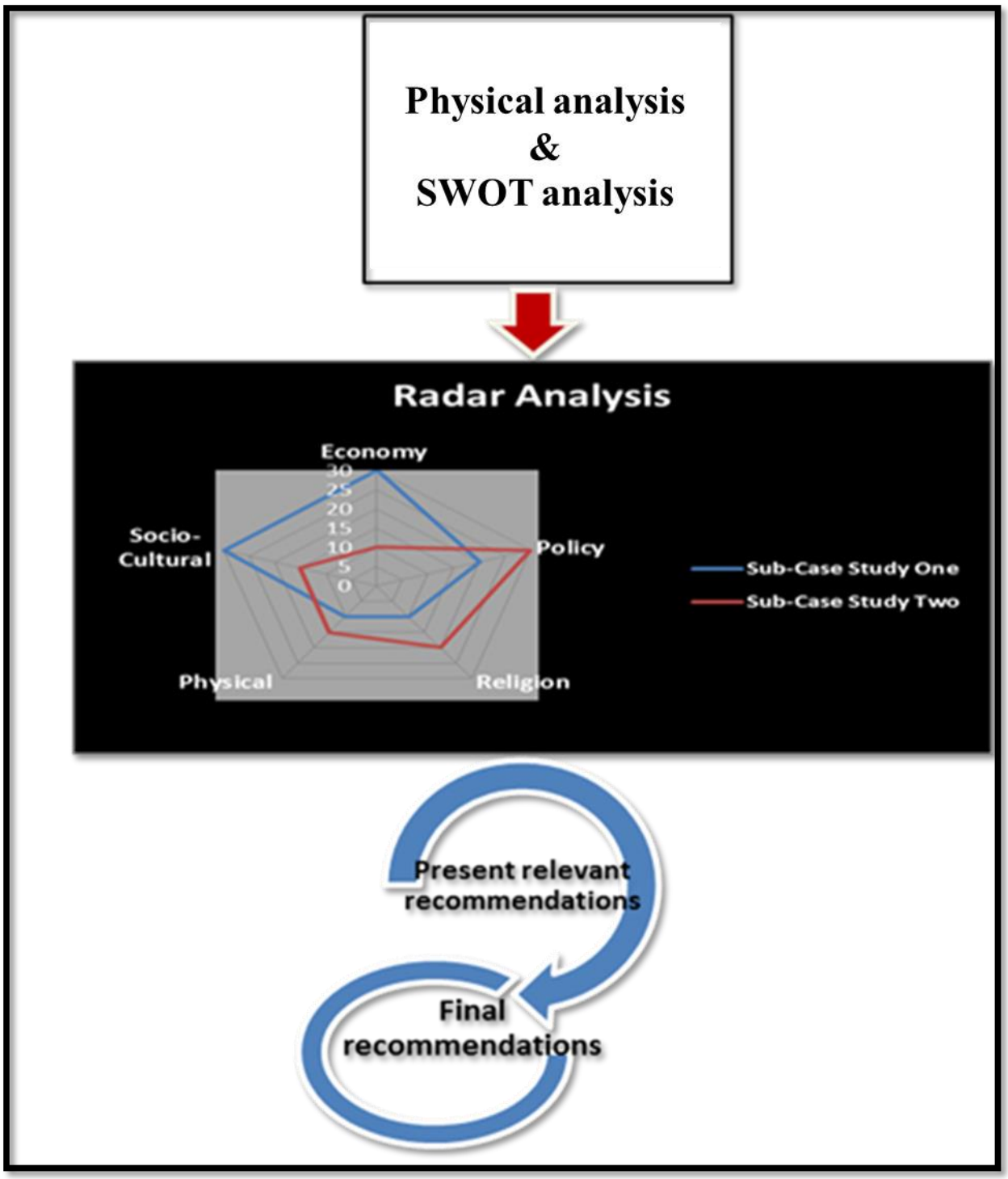

Figure 7. 2 The structure of data analysis and correlation between the key factors.

Therefore, the following sections will present the analysis of sub-case study 2, based on Table 7.1 and Figure 7.2.

7.1 Historical Background of Zone 2

According to the Shiraz municipality report (2005) on the history of Shiraz neighbourhoods, the Bazaar-Morgh was a covered market approximately one kilometre in length with a suspended floor and poor lighting. Shah-Cheragh neighbourhood was named after a famous shrine around which houses were built to accommodate pilgrims. According to the literature review, Eshagh-Baigh was an important neighbourhood in Shiraz's historic core, which was formed by Shah-Jamal-Al-Din-Injou in 1353 AD. This neighbourhood started to develop around the central historic core, and it has a famous mosque, the Mohammad-Ebn-Mousa Mosque, which plays an important role in terms of connectivity and religion in Shiraz's historical fabric because many roads lead to this mosque. Over the centuries these neighbourhoods merged and formed one neighbourhood.

Economic activity and trading played a major role in the shaping of this neighbourhood. The neighbourhood is located in the heart of Shiraz's historic core and it connected several neighbourhoods: Darb-E-Shahzadeh, Lab-Abb, Shah-Squer and Darb-E-Masjed neighbourhoods (Figure 7.3).

The area contains famous urban monuments and mosques that define strong characteristics of this historic area based on religion (Figure 7.3). Key religious buildings are:

- Shah-Cheragh Grand Mosque
- New Mosque
- Atigh Mosque
- Sayyed Alaeddin Hossein Mosque
- Vakil Bazaar

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the thesis due to copyright restrictions

Figure 7. 3 Sub-case study two boundary and important monuments that shaped this neighbourhood; (Source: Shiraz Municipality, annotated by Author).

Zone 2 is an ideal example for examining economic and religious roles in shaping Shiraz's historic core because it contains important monuments such as mosques, bazaars, schools and public services. As shown in Section 6.7, (Chapter 6) the passages played a key role in forming and shaping Shiraz's historic neighbourhoods. This analysis, therefore, also shows the accessibility and permeability patterns. It is also necessary to examine the characteristics of the main passages in sub-case study no.2, known as passages nos. 2 and 13 within Shiraz Municipality reports (2005).

7.2 Effect of Religion on the urban form of Zone 2

This sub-case study contains four main mosques and shrines and its history is heavily influenced by the presence of these buildings: Shah-Cheragh Grand Mosque, New Mosque, Atigh Mosque and Sayyed Alaeddin Hossein Shrine (Figure 7.3). These mosques and shrines influenced the formation of the zone, since passages (Figure 7.4) were constructed to connect these elements within this zone and to connect this zone with other neighbourhoods around it. Passage 2 (shown in Figure 6.15 in chapter 6) is also an important pilgrimage route, connecting Shah-Cheragh Mosque to Sayyed Alaeddin Hossein Shrine. According to fieldwork observations, Shah-Cheragh Mosque is one of the most important monuments in this historic area, built during the Atabakan period (1056-1148 A.D.). This famous shrine is located in the centre of Shiraz's historic core. Figure 7.4 shows that a significant proportion of land use in this zone is taken up by religious buildings and that the main axes around the edge of the zone pass these buildings. However, to the west of the zone, Ahmadi street has now been blocked due to the expansion of Shah-Cheragh Mosque, which connects it to New Mosque. This shows that religious buildings are considered more important than routeways in this zone.

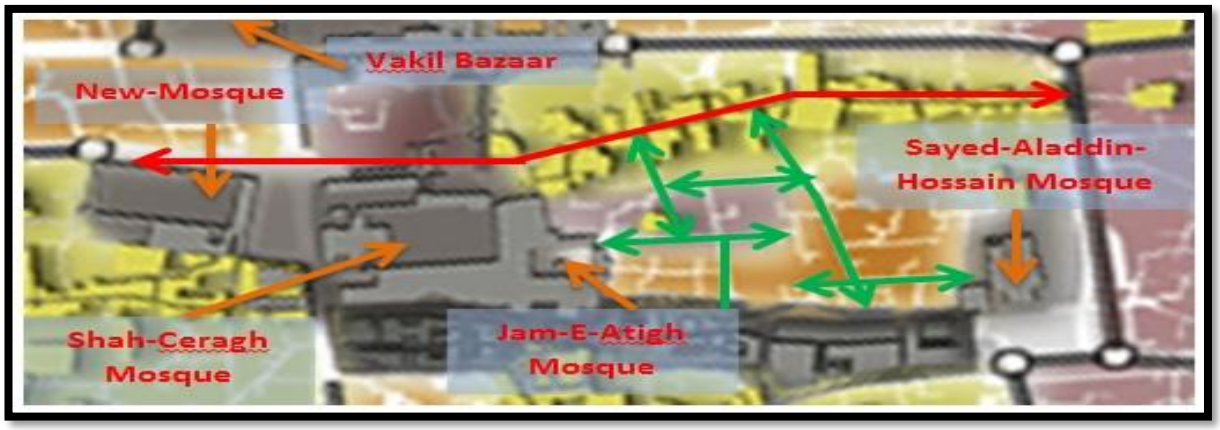

Figure 7. 4 The location of important architectural elements in central Shiraz's historic core and the connections between them. (Source: Author).

From an interview with a senior representative of Shiraz Municipality (Appendix 1, Question 11) it was stated that this neighbourhood shows some of the characteristics typical of neighbourhoods formed in Islamic periods such as:

A. Rhythm and harmony in urban spatial structure

B. Volumetric proportions and visual perspective

C. Weak spots in urban fabric where the homogeneity is broken (Figure 7.5)

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Figure 7. 5 Typical characteristics seen in Zone 2 of neighbourhoods formed in Islamic periods (Source: www.shahbazi.org, annotated by Author).

The above factors from Islamic law influenced the formation of this neighbourhood. One can also see many traces of pre-Islamic culture and arts for designing the interior and the exterior of these monuments. At this stage more attention could be given to these monuments to maintain their status and to design a comprehensive plan for reconstruction of parts destroyed over the centuries. Another important factor is the height of roofs in this neighbourhood that is divided into two levels. In residential areas, the average is less than two floors whereas the heights of religious buildings, based on their importance, show greater variety in height and are generally between three and four floors high. Therefore, it is important to consider this characteristic for rehabilitation of this area to revitalise the identity of the place.

A. Religious status among residents in Zone 2

Tables 7.3 and 7.4 show that 100% of the residents are Muslim, as was the case for sub-case study 1, with almost equal numbers of Sunni and Shia Muslims. The majority of Sunni residents are Afghan immigrants, while the majority of Shia residents are native Fars residents. Unlike sub-case study 1, there are no Arab residents, and in sub-case study 1 there was a much larger proportion of Shia residents.

Religion	Quantity	Percent
Shia	178	50.85
Sunni	172	49.15
Total	**350**	**100**

Table 7. 3 Religious composition of population in sub-case study 2; (Source: Author; Household socio-economic survey, 2010).

Religion	Ethnicity						Total
	Fars	Turk	Arab	Lor	Afghan	Others	
Shia	29.15%	1.43%	-	2.85%	17.42%	-	50.85%
Sunni	15.43%	-	-	-	32.86%	0.86%	49.15%
Total	**44.57%**	**1.42%**	**-**	**2.85%**	**50.28%**	0.86%	**100%**

Table 7. 4 Religious composition of residents in sub-case study 2; (Source: Author; Household socio-economic survey, 2015).

Since this zone consists solely of Muslim residents, as well as three mosques with city-wide function and four local mosques, a rehabilitation strategy in this zone will need to emphasise religious factors and maintain access between the main mosques, urban services such as public baths and the bazaar. The ethnicity analysis is important in order to understand the needs of the residents based on their beliefs and cultures. The plurality of cultures can be the focus of attention in the rehabilitation process of this zone.

As Iranian policies are affected by religion, due to the Islamic government, the following section addresses the effect of policies on this zone.

7.3 Effect of Politics on the formation of Zone 2

From an interview with a senior expert of Pardaraz Consultancy (Appendix 2, Question 11), and also an interview with a representative of Shiraz Municipality (Appendix 1, Question 11), it emerged that several political factors are important for improving and rehabilitating this historical area that may be reduced to the following:

- Lack of co-operation between different organizations that have an important role to play in the process of urban development and maintenance of urban infrastructures in this area.
- Lack of official databanks to manage and save the information about historical buildings and public lands subject to preservation orders in this historic area.
- Lack of management for making decisions about the selection of practical methods for assessing, protecting, renovating, retrofitting and rehabilitating historic buildings and historic urban areas in this historic fabric.
- Lack of practical mechanisms and plans for attracting local residents to cooperate in managing urban affairs management.
- Lack of the clearance of urban development and construction policies for investors.

For reasons explained above for bringing the quality of urban life up to the standard level based on attracting investors, tourism and local residents, it is necessary to establish new policies to be able to cover all identified shortcomings from every angle. Also, it is necessary to pay attention to this subject in the process of rehabilitation of Shiraz's historic fabric.

However, it is also necessary to pay attention to the requirements of Iranian development law regarding street width, shown in Table 6.6 and 6.7, and Figure 6.9 of Chapter 6. Therefore, some streets in Zone 2 require widening, in order to meet the required standard under Iranian law. These streets are shown with a red line in Figure 7.6.

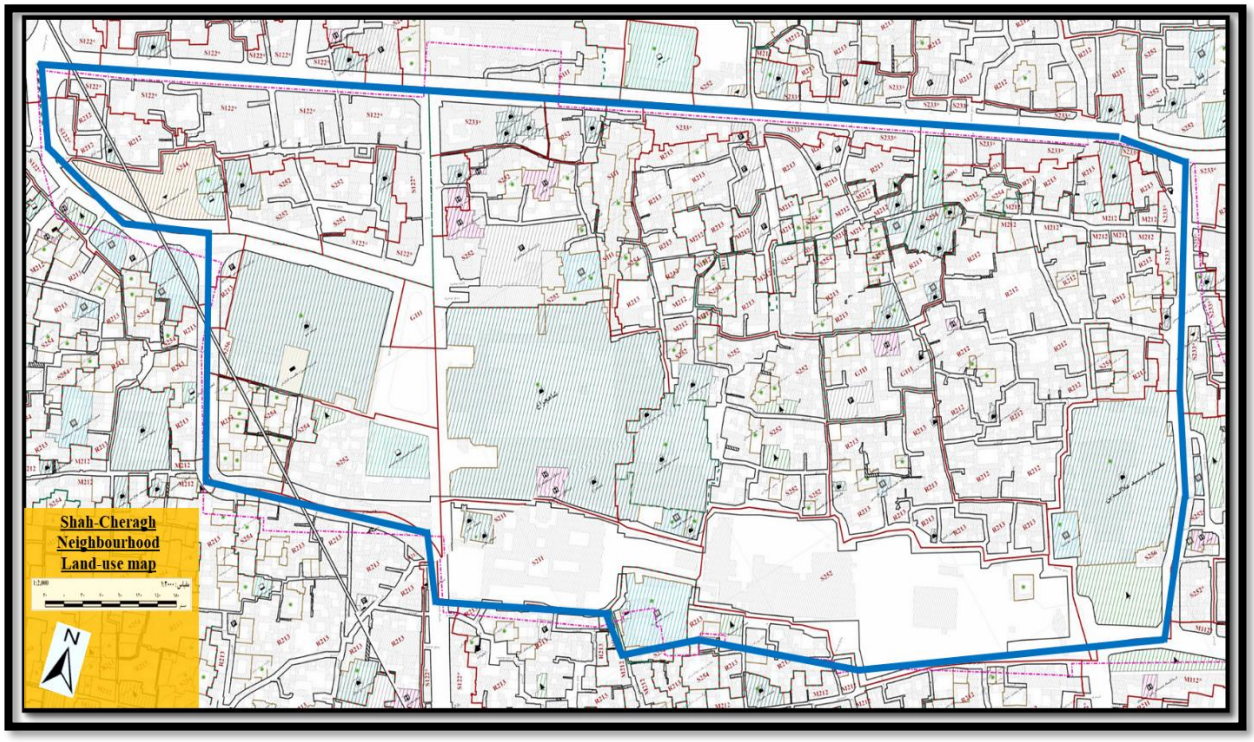

Figure 7. 6 Land-use zoning in sub-case study 2, (Source: Author based on Shiraz municipality data).

Figure 7.6 also shows the planned land-use zoning used by Shiraz Municipality. The codes shown on the map are explained in Appendix 5. Analysis reveals that the main land-uses of sub-case study 2 are for religious residential buildings, and to the north of the zone some commercial buildings.

Therefore, politics affects the urban form bureaucracy and administration efficiency affects how effectively rehabilitation strategies are carried out. Legal requirements for road widths also determine the interventions in the historic fabric and if they are carried out, it allows greater permeability in the historic fabric. The land-use zoning map shows how the development plans apply land-use zoning in Zone 2.

7.4 Effect of Economics on the formation of Zone 2

At this stage, this research will present the analysis of the economic situation within sub-case study no.2 based on the collection of data from the questionnaire (Appendix 3, Questions 10 and 11) and GIS analysis.

Figure 7.7, below, presents a number of different economic indicators of Zone 2.

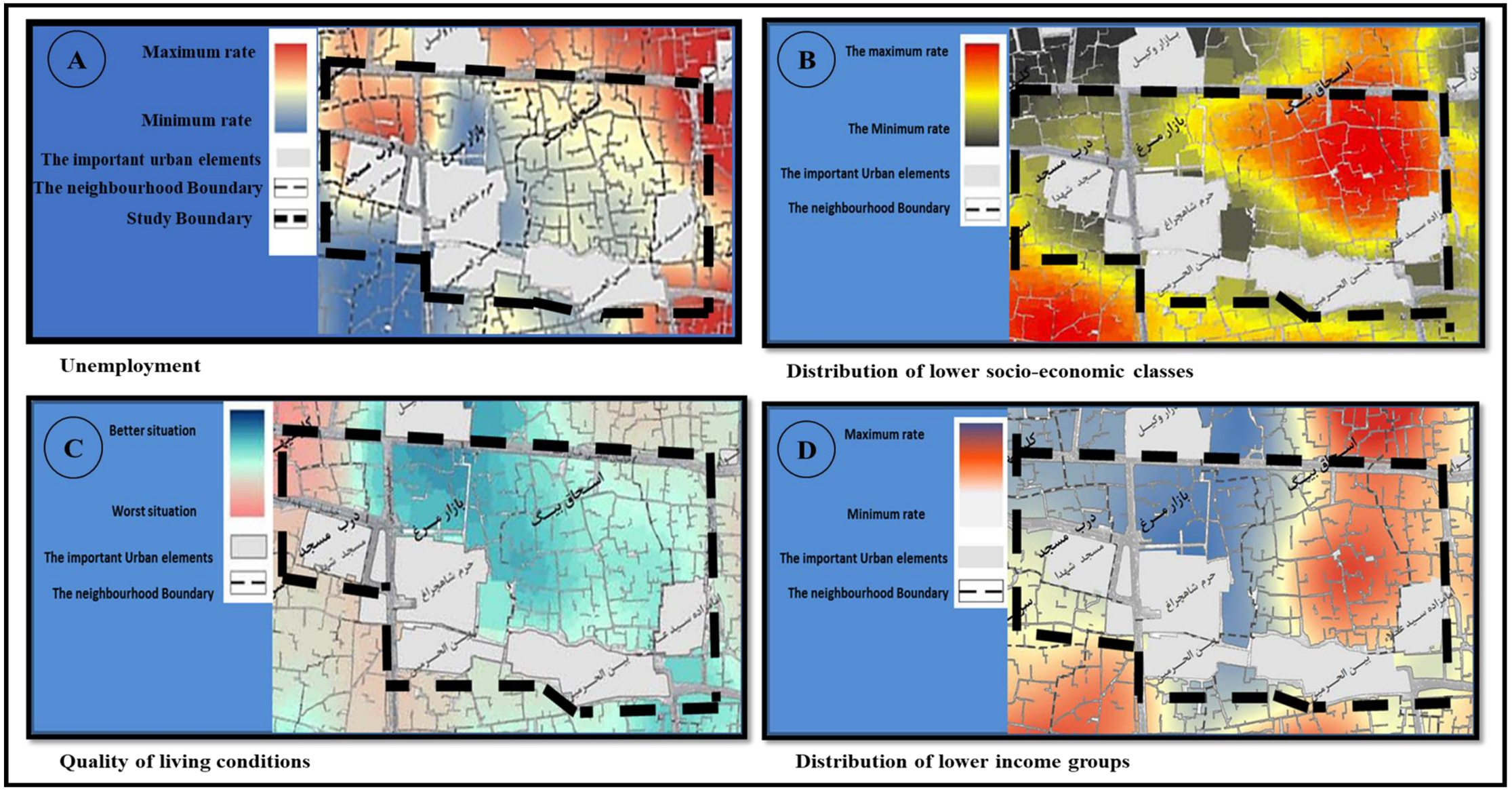

Figure 7. 7 A) Unemployment rates in Zone 2; B) Distribution of lowest socio-economic classes; C) Quality of living conditions; D) Distribution of low-income residents in Zone 2 (Source: Author based on Shiraz Municipality data).

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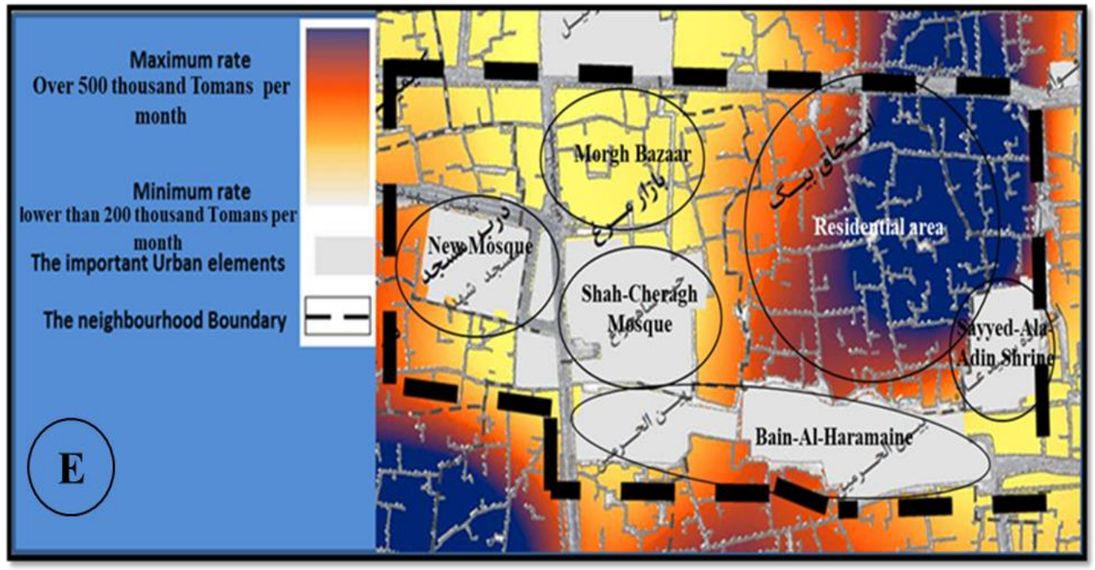
According to the conceptual framework of this research and also livelihood theory, one of the most significant factors underlying the rehabilitation of historic cities is the households' economic level and living conditions of those households. Also, to identify the level of residents' livelihood it was necessary to collect information about their jobs and their incomes. This data was gathered from questionnaires (Appendix 3, Question 10), and the data analysed by GIS (Figure 7.7ABCD). The result of this analysis is important for planners and urban designers alike to find which approaches will be useful for rehabilitating the residents' livelihoods and also improving the quality of life in the historic city of Shiraz.

Figure 7.7A shows that unemployment rates are at the maximum level of the whole historic fabric in the north-east and north-west of the zone, which are residential areas. The centre of the neighbourhood also has relatively high unemployment rates, with lower rates to the south-west of the zone. When compared to Figure 5.22 in Chapter 5, it is clear that unemployment rates in this zone are relatively high compared to other zones of the historic fabric.

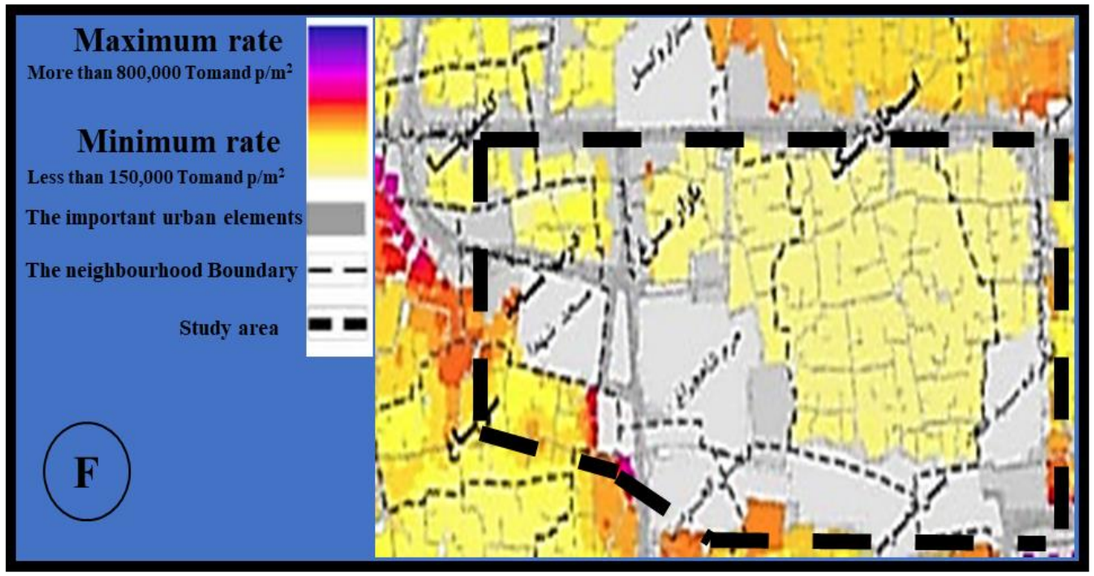
Figure 7.7B shows that the density of lower socio-economic classes is at the maximum rate of the whole historic core in a large part of the north-east of the zone. This rate tends to be lower around the edge of the mosques and shrines (in grey on the map). Comparing this map to Figure 5.23 in Chapter 5 shows that the density of lower socio-economic groups is high, compared to other zones in the historic fabric.

Figure 7.7C shows that the quality of living conditions is at a relatively good level throughout most of the zone but higher in the north-west of the area. This may be because the municipality has invested in the roads around the mosques and shrines because they are used by tourists and pilgrims and the municipality wants to maintain the numbers of tourists by maintaining high quality infrastructure. A comparison with Figure 5.24 in Chapter 5 shows that the quality of living conditions in Zone 2 is moderate compared to other zones in the historic fabric

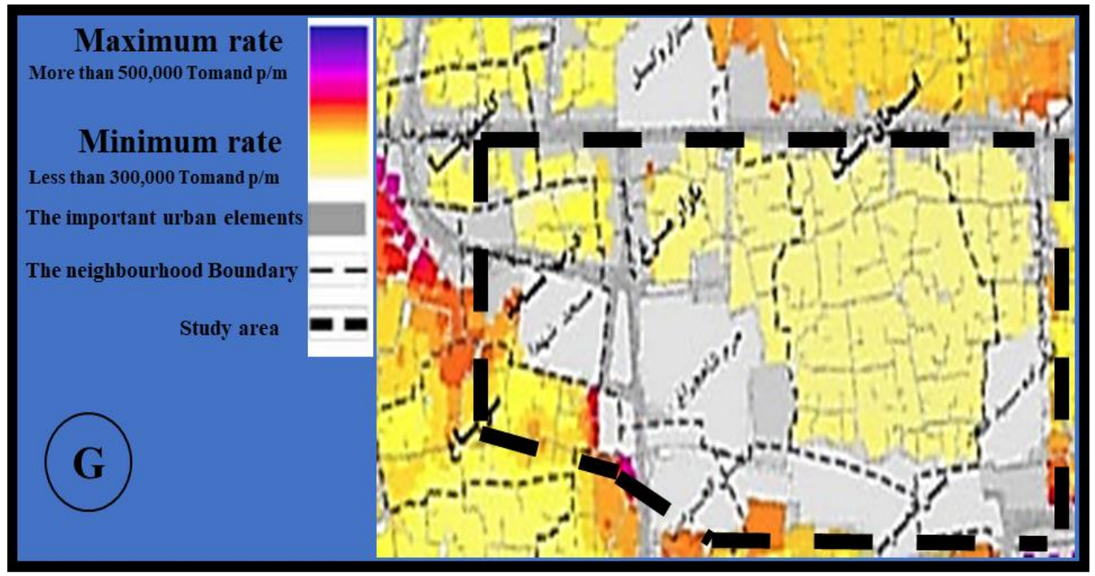
Figure 7.7D shows that lower income groups are at a relatively high rate to the east of the zone, but at a much lower rate to the west of the zone, particularly around the mosques and shrines. This suggests that living close to religious buildings is attractive to higher income residents.



Rate of people renting accommodation



Residential properties prices



Residential properties rental price

Figure 7. 8 E) Rates of people renting accommodation; F) residential property prices; G) Residential property rental prices in Zone 2 (Source: Author based on Shiraz Municipality data).

Figure 7.8E shows that in the north-east of the zone, the numbers of people renting their accommodation is at the maximum level. To the east of the zone, particularly around the mosques and shrines and close to the bazaar, rates of people renting are much lower. A comparison with Figure 5.25 of Chapter 5 shows that the tenancy rates in the east of the zone are at the maximum level for the whole historic core, while the tenancy rates around the mosques and shrines are close to the lowest rates for the whole historic core.

Figure 7.8F shows that the prices of residential property in Zone 2 are at a very low level throughout most of the zone, with a small increase in small parts of the west of the zone. When compared to Figure 5.26 in Chapter 5, it is evident that these prices are at the lowest rate of the whole historic fabric. In an interview with a senior expert of Pardaraz Consultancy (Appendix 2, Question 10, Sections 3 and 5), it was revealed that land price was affected by three elements:

- Governmental price (presented by Municipality)
- Market price (presented by agencies)
- Real price of land (presented by owners)

In these processes the governmental price has the minimum range and the market price has the maximum range. Therefore, it can be stated that the mismatch between these differences have caused many economic problems in this area. Moreover, land values, jobs and the livelihood of residents are additional important economic factors that were diagnosed in relation to sub-case study no.2.

Figure 7.8G shows that the price of renting is also at a very low rate throughout most of the zone, with a few pockets of slightly higher rates in the west of the zone. Comparing this map to Figure 5.28 in Chapter 5 shows that these rates are among the lowest of the whole historic fabric. The analysis of this information revealed that residents living near the Bazaar and mosques enjoy better living conditions than those residents living far from urban service facilities. They also have higher incomes, are more likely to be employed, and tend to own their own homes, while rental and house prices in this zone are low. Also, based on this analysis it is evident that this area needs more attention for improving and rehabilitating than other areas to give the local residents a chance to participate in socio-economic activities. However, to the east of the zone, the quality of living conditions is lower, unemployment rates are higher, and incomes rates are lower. Although house prices are lower in this area, tenancy rates are higher, although rental prices are also low.

This suggests that the residents of the east of the zone are disadvantaged in terms of livelihood and a rehabilitation strategy should aim to improve the livelihood of residents in areas such as this.

7.5 Socio-cultural elements in Zone 2

Most of the socio-cultural data was collected from recent information and results of the public census of people and housing, and by sampling techniques that were chosen during the fieldwork by responding to questionnaires (Appendix 3). The other parts of this information are related to the studies from which the previous projects and detailed plans of historic fabric were extracted. The third data set is derived from a socio-economic survey carried out during the fieldwork when talking to local families.

To achieve the goal of this section, firstly, the most important socio-economic parameters and variables were identified, then a questionnaire was devised, and the necessary indices were determined (Appendix 3). The sample quantity size was thus determined as 350 in this neighbourhood, as explained in section 4.5.2. GIS analysis software was used to analyse the information and another part of the data collected during the fieldwork was analysed by SPSS software. Furthermore, the result of both methods of analysis were converted into a map. Census and survey findings enabled interpretation of the main trends in the historic core.

7.5.1 Analysis of migration status in Zone 2

Migration in sub-case study 2 can be considered from both the perspective of in-migration, whereby residents have moved from outside of the historic core (elsewhere within the city or from other countries) to this zone, and out-migration from this zone to outside of the historic core. Table 7.5 shows that the total population of this zone has fallen by 73%, but that the population density has doubled. This is due to a large-scale demolition of houses in the zone. Similar to sub-case study 1, the literacy rate has decreased from 86% in men in 1996 to 22% in 2015; and from 78% in women in 1996 to 20% in 2015. This can be explained by the arrival of many immigrants and shows that literacy levels are low. This may indicate that employment opportunities are few for the immigrants and therefore a rehabilitation strategy needs to include educational and employment training for the residents of this zone. Unemployment rates were discussed in section 7.4 of this chapter.

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Table 7. 5 Population statistics extracted from government reports in 1996 (1st row) and questionnaires during fieldwork 2015 (2nd row); (Source: Municipality report & Author).

Table 7.6 shows that, as with sub-case study 1, the number of immigrants arriving into Zone 2 in the decade 2005-2015 has decreased from 1996-2004.

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Table 7. 6 Migrants entering sub-case study no.2 during the years 1996-2015 (Source: Statistical Centre of Iran, Public Census of People and Housing, 1996, 2015).

From analysis of the above tables, it is clear that migration has a significant effect on many aspects of life in Zone 2. It has changed the religious identity (as explained in section 7.2) and the economic patterns, as well as socio-cultural identity. Therefore, migration needs to be a key consideration for any rehabilitation strategy in Zone 2.

7.5.2 Ethnic and cultural composition of inhabitants in Zone 2

As with sub-case study 1, it was necessary to collect data about ethnicity in the zone in order to analyse socio-cultural factors, which are a significant component in rehabilitation of historic cities. Table 7.7 shows that Afghan immigrants comprise the greatest share of the ethnic composition, but that there are also a significant number of Fars residents. There are no Arab residents in this zone. This differs significantly to sub-case study 1, where the majority of residents were of Fars ethnicity. Therefore, a rehabilitation strategy for this zone needs to have the duality of cultures as a key consideration.

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Table 7. 7 Ethnic composition of residents in the Shiraz historical-cultural zone; (Source: Household socio-economic survey, 2015).

7.5.3 Relationship between ethnicity and family size in historic core

Table 7.11 shows that Turk residents of this zone tend to have the smallest family size, at 2.2 people per household, while Afghan residents on average have the largest family size, at 7.8 people per household. Since Afghans comprise 50% of the population of this zone, this helps to explain the high population density shown in Table 7.8. However, a high density of population puts pressure on the houses and the urban services. Therefore, a rehabilitation strategy for this zone needs to consider how houses and services can support the Afghan residents and the population density.

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Table 7. 8 Ethnic status and family size in historical texture; (Source: Household socio-economic survey, 2015).

7.5.4 The closeness of relationship with neighbours among inhabitants

Municipality reports (2015) provided data on the levels of relationships between residents in this zone. Table 7.9 shows the results of how residents responded to the question, *"How close a relationship do you have with your neighbours?"* It shows that around 75% of residents assessed their relationship with their neighbours at a low or very low level. The high proportion of immigrants in this zone and reduction of local Fars residents may be one of the main factors for poor neighbourhood relations in this zone. Figure 7.9 shows that of all the zones in the historic district, the rates of connection with neighbours are in the middle of the range, with the exception of the west of the zone, where the maximum rate of connection with neighbours is experienced. The rates of connection with neighbours in Zone 2 differ greatly from sub-case study 1, where the rates of good relations were much higher. This suggests that social rehabilitation is a higher priority in this sub-case study than sub-case study one.

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Table 7. 9 The closeness of neighbourhood relations among inhabitants in Zone 2; (Source: Municipal Household socio-economic survey, 2015).

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Figure 7. 9 Rates of neighbourhood interactions in Zone 2; (Source: Municipality data annotated by author).

7.5.5 Rate of participation in collective activities

Table 7.10 shows the rate of participation in collective activities in this zone. Collective activities include religious festivals, community projects and local fairs. Around 78% of residents, according to this data, participate at a low or very low level in collective activities and only 4% of residents participate at a high or very high level.

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Table 7. 10 The rate of participation in collective activities among inhabitants in sub-case one (Source: Household socio-economic survey, 2015).

A comparison of Tables 7.9 and 7.10 shows that residents who rarely participate in collective activities are less likely to participate in rehabilitation projects in their neighbourhoods. Therefore, a rehabilitation strategy based on public participation needs to increase the sense of community in this zone. When comparing the two sub-case studies, it can be identified that both zones have the same issue in terms of participation, however, this lack is more recognisable in sub-case study one.

The analysis of the socio-cultural aspects of sub-case study 2 shows that large number of immigrants have settled in the zone, while a large proportion of Fars residents have left the zone. This means that many of the residents currently living in the zone do not have a cultural connection with the historic fabric. The majority of immigrants are Afghans, who have larger family sizes than other ethnicities. This has led to a higher population density in this zone and has put pressure on houses and local services. Interactions between neighbours and participation in collective activities are at a very low level, which is a barrier to rehabilitation, since residents are less likely to take pride in their surroundings by maintaining it or participate in rehabilitation projects.

7.6 Morphological and urban formation of sub-case study two

The morphological components of the Morgh-Bazaar and Eshagh-Baigh neighbourhoods are discussed as outlined in Table 3.3 in Chapter 3. These layers combine many characteristics of residential, commercial and religious historic areas. Figure 7.1 shows this zone is located in the centre of Shiraz's historic district. The following sections analyse the morphological layers of this historic zone (Figure 7.10). However, since the fabric on this zone is organic, there are no blocks, as buildings were built on plots individually.

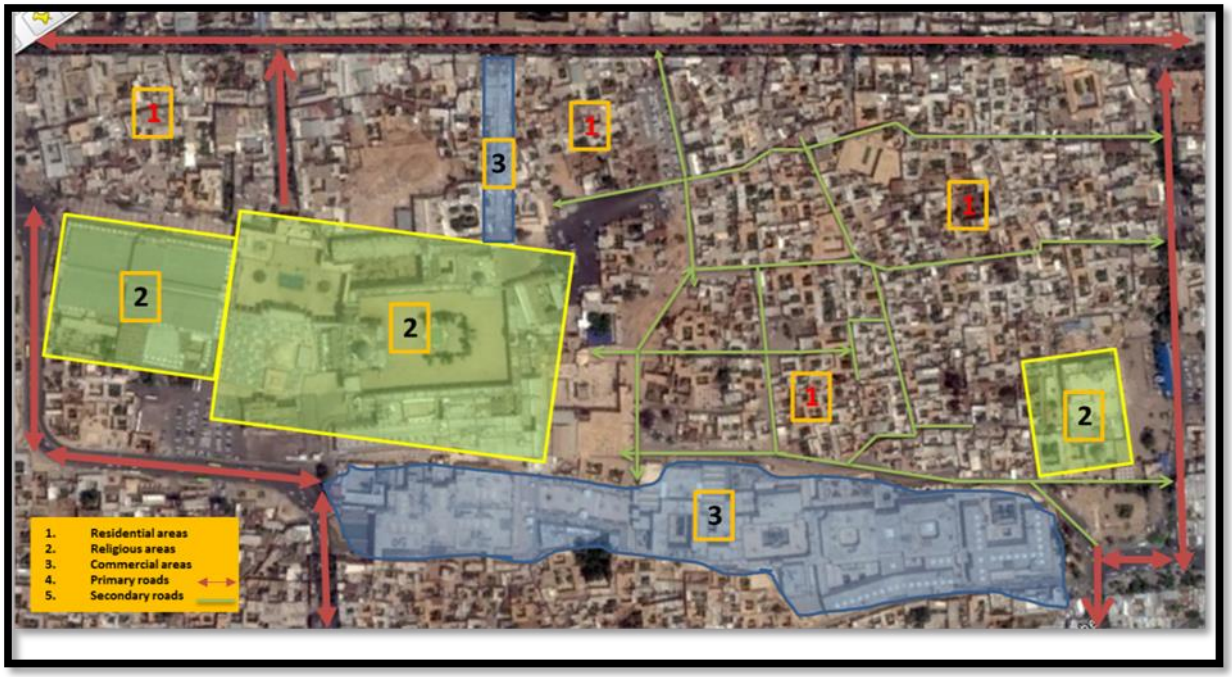

Figure 7. 10 Analysis of neighbourhood for identifying urban structure. (Source: Author).

Topography: This zone is located centrally in the historic district, on a plain with no hills, valleys or rivers. The formation of the zone was influenced by the Atabakan axis to the south and the Safavid axis to the north. From an analysis of historical maps of Shiraz, it is clear that sub-case study No.2 was formed organically in the same way as subcase study No.1.

Land use pattern: As shown in Figure 7.5, Zone 2 contains religious, residential and commercial land, with large amounts of space devoted to religious buildings.

Street pattern and open spaces: Fieldwork observations identified that the shape of passages and alleys are organic and irregular. This can be seen in Figure 7.11. These passages provided security and privacy for residents as explained in chapter 6 (section 6.6). Figure 7.11 shows that many parts of this area have been destroyed as a result of religious and economic development. An interview with a senior expert of Shiraz municipality (Appendix 1, Question 9), reveals that these passages have distinctive features, including a hierarchy of roads and passages, quality, scale, proportions of length, width and height. Also, the hierarchical system denotes the access routes to this area. In a similar way as passages in sub-case study No.1, the main branches of routes connect different parts of this area; subsidiary branches have local functions (shown in green in Figure 7.11) and, finally, minor alleys and dead-ends (shown in blue in Figure 7.11) make up the neighbourhood routes.

Figure 7. 11 The organic structure of sub-case study two; (Source: Map: Author based on Shiraz Municipality data Photos: Author).

Analysis of the spatial and morphological structure of Shiraz's historic fabric was carried out by Shiraz Municipality in 2014. It identified that the organic nature of this zone made it more secure than other zones, since non-residents entering a dead-end street would attract the attention of residents.

The pre-Islamic hierarchy of privacy (public, semi-public, semi-private and private) exists in the residential parts of this neighbourhood. Examples of this can be seen in Figure 7.11, where the passages are narrow and winding to give a semi-public nature to the passage.

7.7 Factors affecting road formation

The organic nature of the physical structure in this zone makes it difficult to rationalise the formation of the streets. However, there are some clear factors which influenced the formation of roads and these are discussed as follows:

7.7.1 Position of landmarks in the zone

As shown in Figure 7.3, there are some significant landmarks in this zone: Shah-Cheragh Grand Mosque, New Mosque, Atigh Mosque, Sayyed Alaeddin Hossein Mosque, Bein-Al-Haramein mall and Vakil Bazaar. As these landmarks have important religious and commercial functions on a city-wide scale as well as being important for pilgrims and tourists, the roads have formed around these landmarks to allow optimal access to them.

7.7.2 Access to public spaces with historical and cultural values

According to Shiraz Municipality report, there is a need for public open spaces around the mosques and bazaars to serve religious and social activities, such as green spaces and coffee shops for recreation and public gatherings.

According to Section 6.3 of Chapter 6 some of the existing passageways in Shiraz's historic core possess special value in terms of its morphological characteristics. By considering their past and present roles as well as their function in hierarchy, they can be considered historical passages. Figure 6.15 in Chapter 6 shows all of the historic passages in the historic district. The two passages located in this zone, which influenced the formation of this neighbourhood are discussed in the following sections:

- Passage number 2: Bein-Al-Haramain passage
- Passage number 13: Emamzadeh-Zanjiri alley

7.8 Historic passage no. 2 Bein-Al-Haramain passage

According to an interview with the senior expert of Pardaraz architecture and urban design consultants (Appendix 2, Question 10:2), this passage is one of the foremost structural east-west routes in the historic core, starting from Ghasab-Khaneh Gate in the south-east of the historic core and, after passing notable landmarks at the centre of Shiraz's historic core (market and Shah Cheragh), it continues up to the western side of this historic area. The intersection of this route with Northern Ghaani Street is considered to be the western limit of this passage (Figure 7.12).

This passage is called Bein-Al-Haramein ("between two shrines") and it is located to the north of Alamdar Alley (passage no. 5) that featured in sub-case study no.1 of this research (Figure 6.15).

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Figure 7. 12 Location of the Bein-Al-Haramein historic passage. (Source: Pardaraz Consultant).

Figure 7. 13 Situation of Bein-Al-Haramein Street in Shiraz historic core. (Source: Google maps, annotated by Author).

Figure 7.13 shows the location of Bein-Al-Haramein mall in red, which previously was a residential area which was demolished by the municipality in 1985 to make way for the mall. The shrines are shown in green.

Analysis of an interview with a representative of Shiraz Municipality (Appendix 1, Question 10:5) and of different layers of its physical structure, identifies this passage as one of the oldest routes in Shiraz's historic core, having been formed during the Atabakan period (1148-1176). Therefore, this route plays an important role of providing access between the south-eastern edge (the Ghasab-Khaneh Gate) and the central elements (threshold and Shah-Cheragh, the Grand Mosque and market) from where it continued to the south-west of the historic core. Also, four additional historical axes in Shiraz's historical core were formed from south to north during the Buyid (934-1062AD), Atabakan (1148-1176), Safavid (1598-1736) and Qajar periods (1906-1925) (Figure 5.44), up to recent times where the western part that is now called Bein-Al-Haramein (from Shah-Cheragh Limit to the west) aligned with the Azodi aqueduct course (Figure 7.14).

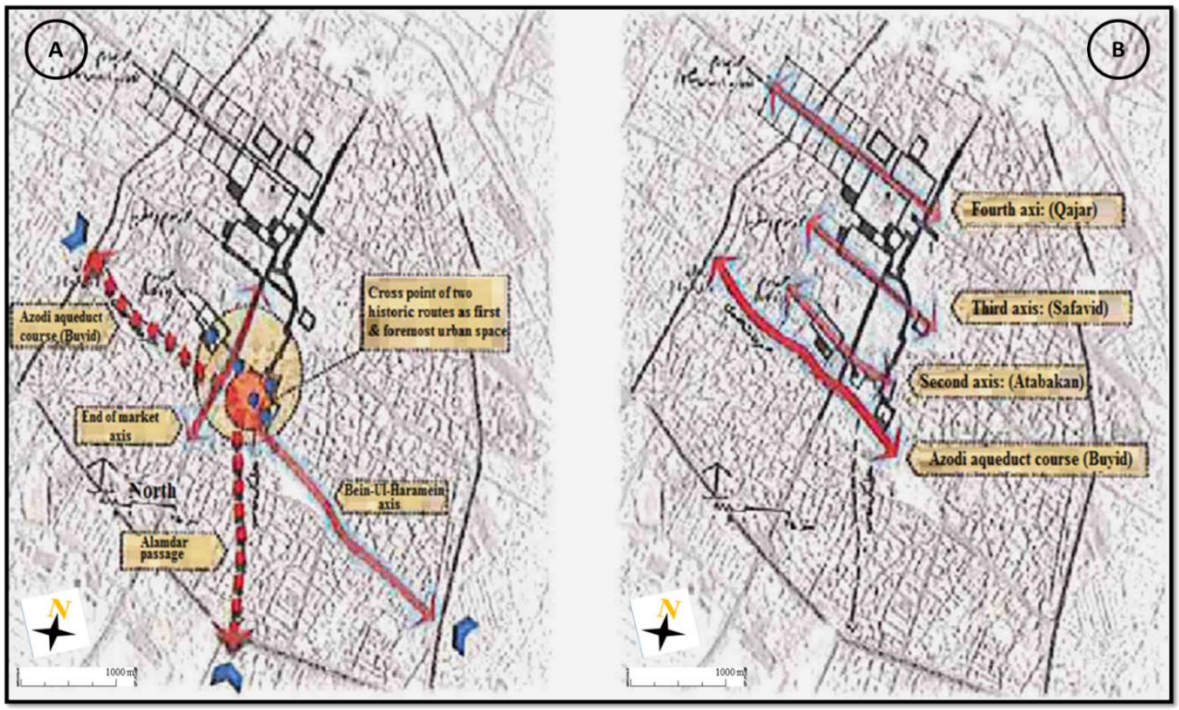

Figure 7. 14 Bein-Al-Haramein passage compared to other historical axes. (Source: Author based on Shiraz municipality data).

7.8.1 Morphology of passage

According to maps (Figure 7.14), field surveys and interviews with a representative of the local community (Appendix 4, Question 7) the length of this passage is a little over 1900m running in a general east-west direction. The width of this passage is highly variable (between 3-8 m). The average width of the passage is a great deal more than 6m in the eastern part, but its average width is about 3m in its western part where it is connected to organic passages in the western part of historic fabric. This passage is coated with tarmac and lacks a sidewalk (Figure 7.15).

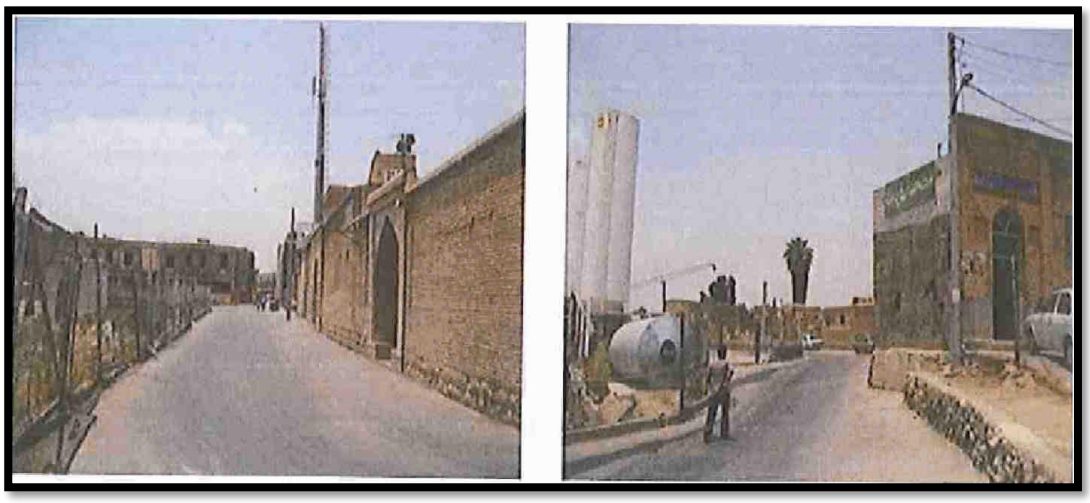

Figure 7. 15 An example of service infrastructure and distinctive features of the Bein-Al-Haramein passage.

Three main plot patterns are seen in this passage, with a few exceptions. Figure 7.16 shows the location of these plot patterns, which are illustrated in Appendix 8. The plot patterns are as follows:

- Quadrilateral plots (shown in green on map) which contain mainly mosques have a northwest-southeast orientation.
- U-shaped plots which have a northwest-south east orientation
- L-shaped plots with a north-south orientation
- A few plots have a parallel or one-sided shape and north-south orientation

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Figure 7. 16 Locations of different plot patterns in Zone 2 (Source: Shiraz Municipality, annotated by author).

Answers to Question 8 of Appendix 4 when put to a representative of the Ministry of Energy, revealed that the lighting sources and electricity transmission network are supported by installation of electricity wooden poles, which is sufficient evidence of how much this system is out of date.

The electricity poles have been erected at irregular intervals in the passage (Figure 7.17). The passage also lacks a pavement. Hence, there are some ditches and water channels in some parts of this path that shows this passage requires repair and re-designing in some sections.

Figure 7. 17 An example of electric wooden posts in the Bein-Al-Haramein passage.

7.8.2 Urban design qualities of passage

The urban design qualities of this passage were analysed through fieldwork observation and questionnaires by residents (Appendix 3) as follows:

Permeability

According to the manager and senior designer of Naghsh-Jahan Consultants (Appendix 2, Question 2), this route includes strong spatial connection and continuity with southern localities within Shiraz's historic core. However, despite contemporary developments in this area (developing the Shrine and widening of Ahmadi Street), this continuity leaves a lot to be desired. This passage has only external direct links to Ahmadi Street, that is, the alleys within the zone do not connect to Ahmadi Street and the only direct links are on the edge of the neighbourhood. The link between this passage and central elements is profoundly affected by the quality of the Bein-Al-Haramein project. (Figure 7.18) This means that permeability in the residential area is weak and residents are forced to choose between Ahmadi Street and Bein-Al Haramein passage for commercial activities.

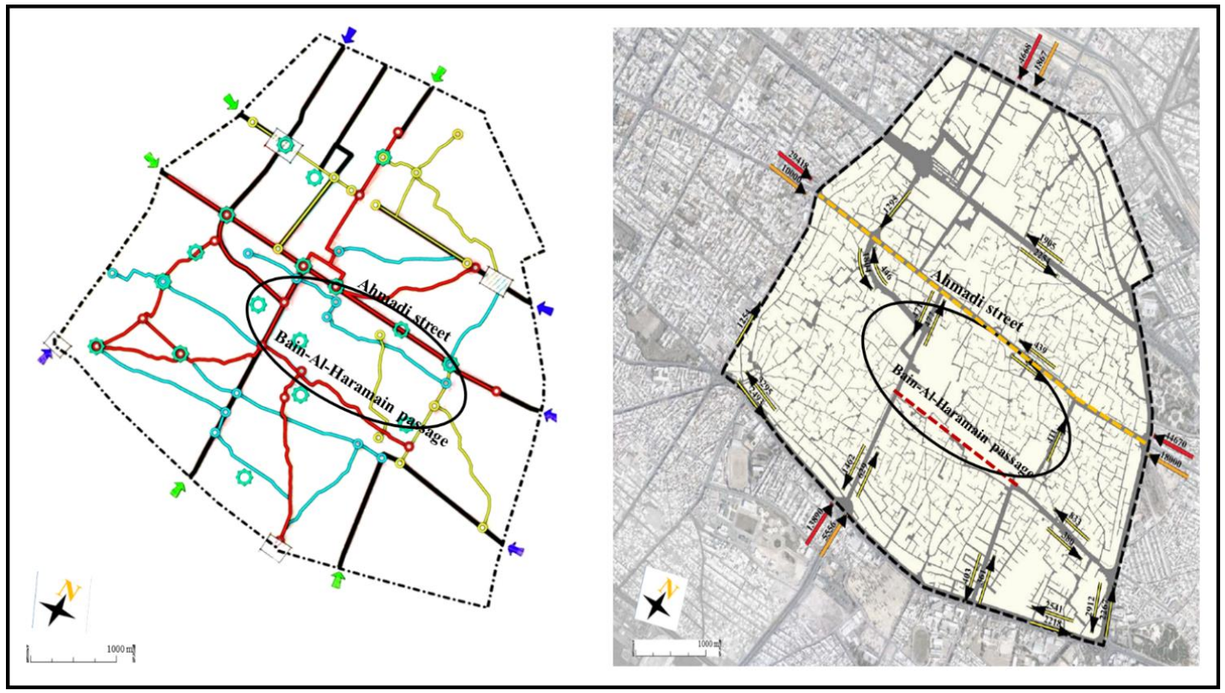

Figure 7. 18 Illustration of weak connections between Ahmadi Street and Bein-Al Haramein passage and connections via internal alleys. (Source: Author based on Shiraz municipality data).

In the view of a senior expert of Shiraz Municipality, this passage starts from the eastern side of Balakafd Locality and passes right through the Sarebagh, Lab-Abb, and Sang-E-Siah Localities. In fact, the eastern part connects Balakafd Locality to the north at Sang-E-Siah Locality, (Figure 7.19).

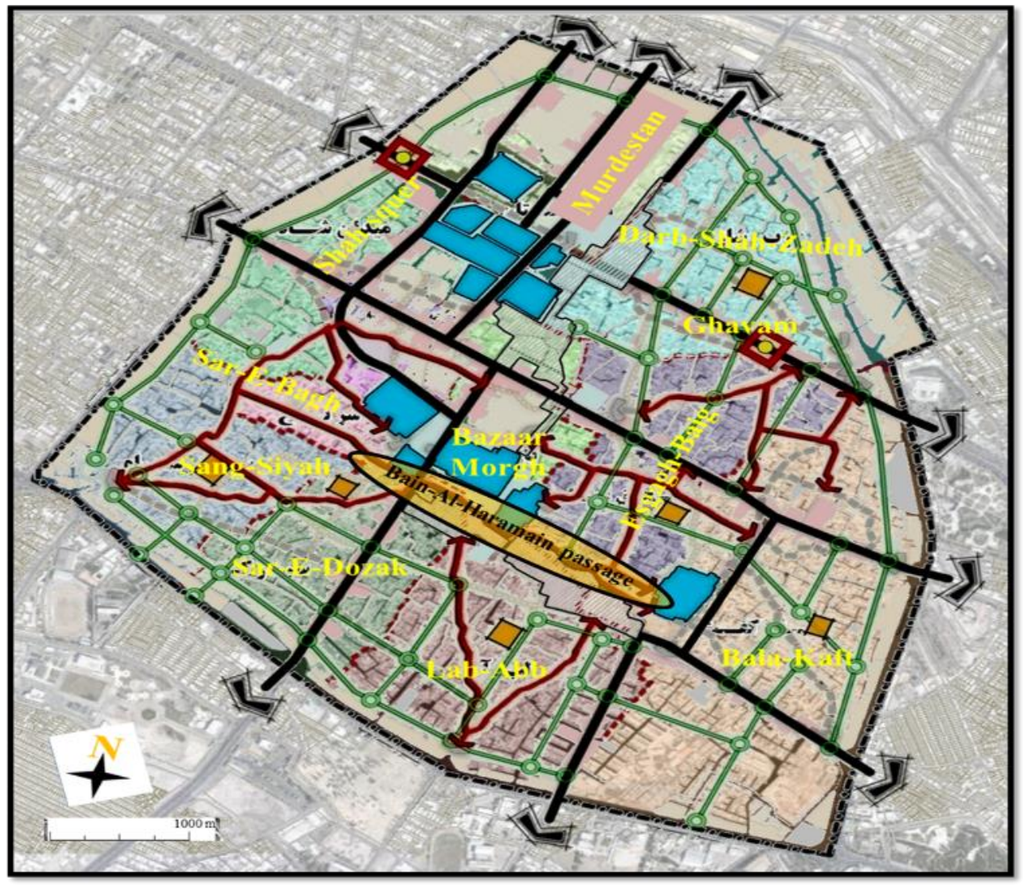

Figure 7. 19 The connection of Bein-Al-Haramein passage to the eastern and western parts neighbourhoods in Shiraz historic fabric (Source: Author based on Shiraz municipality data).

According to the explanation of a representative of Shiraz Municipality (Appendix 1, Question 9), a very important point about this passage is related to its intersection with the Azodi aqueduct passage that included the first urban space in Shiraz's historical zone. After creation of this passage as access from the Ghasab-Khaneh Gate to Grand Mosque, market and central elements and also, placement along with Azodi aqueduct course, the east-west axis was created. So, the intersection of these two passages is very important in terms of permeability and legibility. Any alteration in this structure is disrespectful to the uniqueness of spatial organization of Shiraz's historic core. Interviews with the senior designer of an architectural and urban design consultancy organisation (Appendix 2, Question 8) identified that this passage is well linked to the main features of the historical core. It has high importance in terms of the access and relationship with central elements such as the Grand Mosque and Bein-Al-Haramein Bazaar.

Variety of land use and buildings

A senior expert of Shiraz Municipality (Appendix 1, Question 11) stated in interview that the quality of spatial contrasts contributes to the organic and historic status of this passage, but some parts have been changed. In terms of specific morphological and visual qualities (local and traditional colour, structural themes in walls, sunshades and architectural decorations), this axis has relatively high aesthetic qualities, particularly in unaltered parts in the western side of the passage. Hence, the passage may meet the expected quality in terms of possessing visual scenes and spatial and morphological contrasts due to its organic nature, as well as logical sequences of land-uses (residential, religious and commercial), as shown in Figure 7.20. The codes used on this map are explained in Table 6.5.

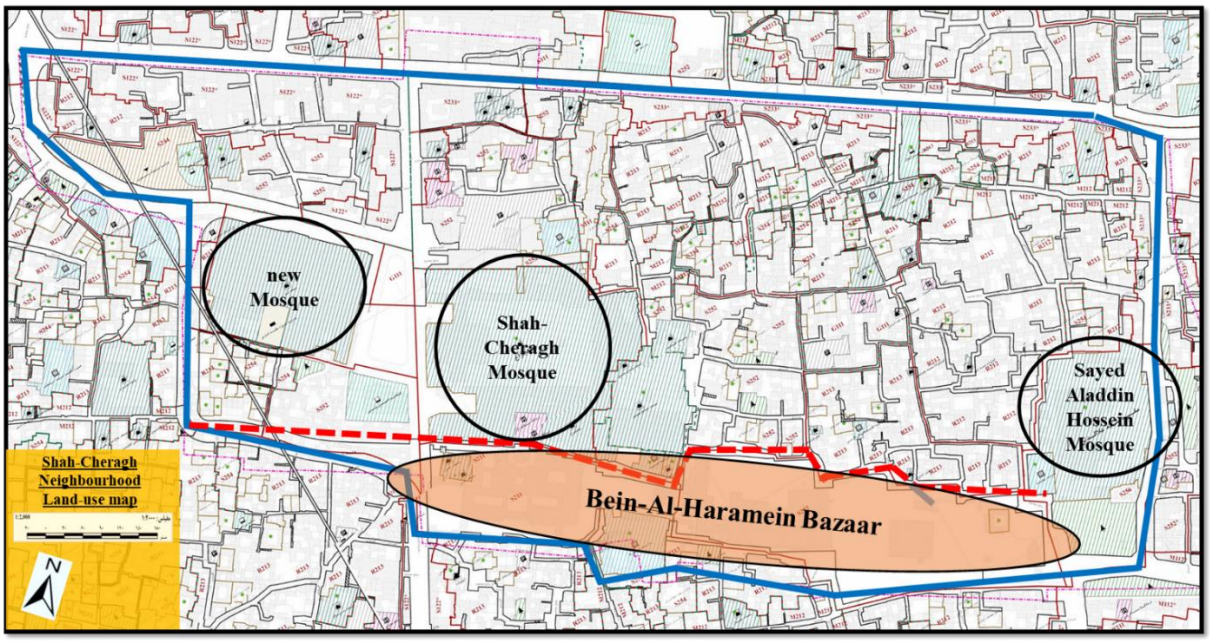

Figure 7. 20 Land-use zoning in Shah-Cheragh neighbourhoods in Shiraz historic fabric (Source: Author based on Shiraz municipality data).

The senior expert of the Ministry of Housing (Appendix 1, Question 21), stated that the morphological status of buildings in this passage is similar to Alamdar Alley from the eastern side that continued to the area of Ahmadi Street. The extreme widening of this path from the Ghasab-Khaneh gate to Astaneh-Square has disturbed the morphological system in this zone and has led to an increased homogeneity of new buildings. Urban spaces in this zone are situated away from historical buildings and from new urban spaces. Although the central zone is subject to the Bein-Al-Haramein project, in the north of this passage the prevailing structure follows an organic pattern and the number of new constructions is severely limited (Figure 7.20).

Analysis of maps and fieldwork observations revealed that the wall-to-floor ratio is approximately 2:1 in the western part of this passage. The façades in many parts of this passage from Ahmadi Street to the east and a little in the western area of this passage are in poor condition and there is little definition of spatial enclosure due to pending morphological developments. However, there is full sense of enclosure in the western part of this passage (Figure 7.21).

The senior expert of Ministry of Housing also stated that the façades in the Astaneh Street area have a large number of windows facing the passage. Due to construction projects in the central part, this issue could not be explored. However, there are very few windows facing the passage in the western zone, and the passage winds greatly in this zone. The facades have been placed behind the passages in most sections to increase privacy and

security. This passage has relatively strong aesthetic qualities and the passage has a spacious feel throughout (Figure 7.21).

Figure 7. 21 Examples of spatial enclosure and spaciousness in Bein-Al-Haramein passage.

Legibility

Municipality reports (2005) and fieldwork observations show that this passage has been fully defined by Astaneh Square, Bein-Al-Haramein complex and Ahmadi Street and other urban elements. This definition of start and finishing points as well as distinct spaces and uses contribute to the high quality of legibility of this passage. The passage is also well-defined by the presence of Shah Cheragh Mosque in the north-west, Seyed Alaeddin Hossein shrine in the south-east and the Bein Al-Haramein mall lying parallel to the passage (Figure 7.22).

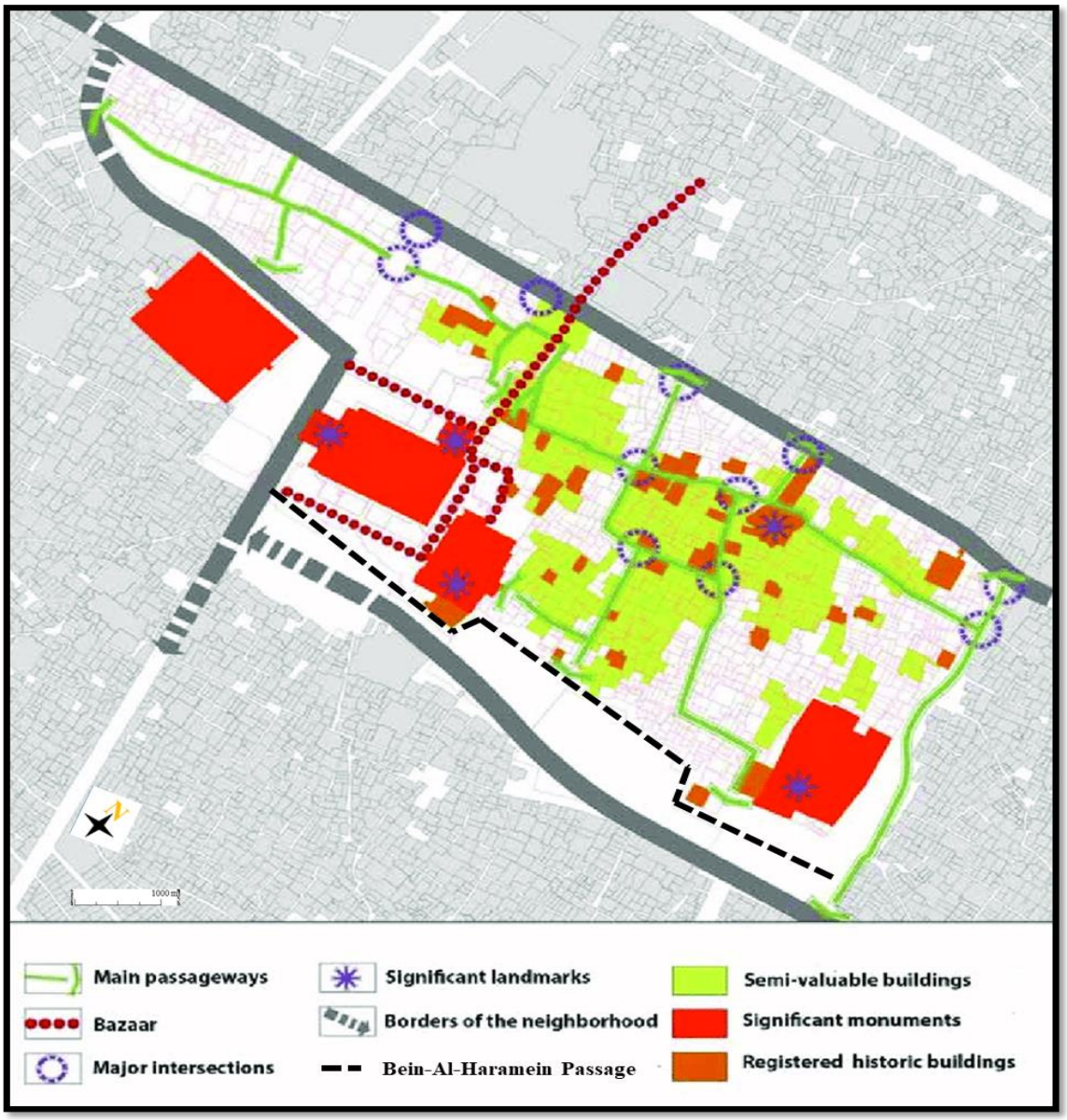

Figure 7. 22 Legibility map of Bain-Al-Haramein passage in Shah-Cheragh neighbourhood (Source: Author based on Shiraz municipality data).

The presence of these major landmarks helps to give the passage legibility, since legibility is defined as: "the possibility of organizing an environment within an imageable and coherent pattern" (Koseoglu and Onder, 2011, p.1191). This passage enjoys direct axial and valuable views.

A senior expert of Shiraz Municipality (Appendix 1, Question 2) stated that at present, the eastern part includes a new urban street and the central part is also influenced by plans for development of Bein-Al-Haramein. The western part of this passage is even more closely linked to historical buildings (Figure 7.22). The succession of the wall in the listed buildings and houses ranging from Ahmadi Street to the limit of Moshir Mosque means that it is impossible for any widening of the route in this area (Figure 7.22).

Therefore, this part of the passage could not be used as a place for vehicular transport and no basic change may be implemented in the facades in the section between the two shrines. Many historical and architecturally valuable buildings cause the buildings and blocks of this passage to be placed under severe restrictions, that is, they cannot be left as they are, but must be repaired in harmony with their surroundings. The valuable buildings are located in the central area of passage: Moghimiyeh and Taheriyeh schools and Sardozdak Mosque, a listed building, however, the exterior may be changed in other places in harmony with existing changes (particularly Bein-Al-Haramein Project).

Resilience

Fieldwork observation identified that this passage has been profoundly affected by recent morphological changes; for example, the eastern part of this passage is no longer considered a section of a historic passage. Disturbance and visual pollution in the passage's appearance, as well as changes in role and function are also evident (Figure 7.23).

Figure 7. 23 Examples of visual pollution in Bein-Al-Haramein passage.

Therefore, the main problems in this passage are as follows:

Damage within Historic Passage 2
The role of the passage within the hierarchy of passages has changed due to the destruction of houses and fabric for the construction of the new shopping centre, Bein-Al-Haramein mall.
Several strategic views in the passage have been disturbed
The tarmac coverage of the passage floor causes lack of air flow and moisture exchange and causes decay of buildings in the western zone.
Vehicular transport interferes with pedestrian movement
Noise from cars and copper workshops in this passage is disruptive for inhabitants and passers-by and threatens the historic monuments

Table 7. 11 Damage within Historic Passage 2.

The listed buildings of this passage (of which there are around 230) are prone to damage and the quantity of destroyed bodies is noticeable. Hence, this particular passage occupies a special position in terms of spatial organisation and in the movement system in this historic fabric. Vehicular transport should not stop in this passage westwards from Astaneh-Square, respecting the role of this passage as an axis for pilgrimage and as much consideration as possible should be given to the vehicles of inhabitants (provision of parking spaces). The grounds for justification of this point are as follows:

- The role and function of the passage in the movement system and provision of access especially for pedestrians (individual and collective);
- The important role in the pedestrian movement system of the passage amid the gate zone in the south-eastern edge of the neighbourhood (Ghasab-Khaneh Gate) with its central valuable zone as well as the western section of the neighbourhood
- Its valuable morphological and spatial qualities and its function as a pilgrimage route, since Shah-Cheragh shrine and Sayyed-Aladdin-Hossein Mosque are important sites for Shia Muslims (Figure 7.22).

The well-being (vitality) of this passage is mainly the result of its sensitive role in the movement and access system. The presence of various groups indicates a high quality of social life and mosques and the shopping centre are attractive social spaces. A senior expert of Shiraz Municipality (Appendix 1) stated that the vitality of space in this passage increases as one moves from east to west. Some points in this passage, such as the mosques, the bazaar and famous houses which have become museums, possess morphological and spatial characteristics which enhance social and cultural activities. The most distinct example of these is the point of intersection with the Emamzadeh-Ebrahim Alley (southern part of Azodi aqueduct course), located in the southern area of the Atigh Grand Mosque (chapter 6, Figure 6.27). In the past, this space was considered the foremost social, morphological, and functional urban space in Shiraz's historic core. Moreover, the aforesaid historic passage may be considered worthy of Grade 1 listed status of intervention (Figure 7.29), so it needs to be preserved to continue to fulfil its present function, giving pedestrian access.

A representative of the Ministry of Housing and Urban Development (Appendix 1) mentioned that two points in this passage are suggested as centres for local services. The first one is the intersection of the passage with the Emamzadeh-Ebrahim Alley where the

social and spatial roles were emphasised by the presence of the Grand Mosque. The second is the intersection of the passage with Sang-E-Siyah Alley, where there is spatial potential and the intersection points are considered as local services centres for the Sang-E-Siyah historic passage. Therefore, it can be concluded that the western area of the passage includes a lot of potential for services and for religious use.

7.9 Passage no.13: Emamzadeh-Zanjiri alley

The map below (Figure 7.24) shows that access to the east part of this passage is through three entrance zones, which include Ghasab-Khaneh Gate in the south-east, all of Abu Zareh at the centre of the eastern side, and the Saadi gate in the north-east. Before the recent interventions in this area, the passage was connected directly to the central part and market axis and today it has been changed into the current Lotf-Ali-Khan Street with substantial alterations. However, a little below this axis and parallel to that area, Emamzadeh-Zanjiri Alley passage is located. This passage connects the eastern edge of Shiraz's historical core with the central part (market and religious buildings). However, in terms of its role and responsibility for regulating the movement system it is less important than the passage to the north of this area (the current Lotf-Ali-Khan Street).

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Figure 7. 24 Emamzadeh-Zanjiri Alley Passage. (Source: Shiraz municipality).

7.9.1 Morphological components of the passage

Most of the buildings at the eastern end of the passage are in good condition, having been renovated. Despite changes in the pattern of new buildings, the orientation of the land on both northern and southern sides is in a northeast-southwest orientation while the plots are in an approximate east-west orientation. This order is reduced gradually from Darb-E-Shikh Street as one progresses towards the west and we observe various directions in the placement of plots (Figure 7.25).

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Figure 7. 25 The location of valuable architectural elements and visual senses around Emamzadeh-Zanjiri passage. (Source: Google images, annotated by Author).

New plots are composed of two main parts and lie perpendicular and parallel to the passage. With respect to the almost east-west direction of the axis, the plots run parallel to the majority of buildings at the west of this part and they are perpendicular to the passage in the north (Appendix 8).

The most frequent pattern for arrangement of the buildings is U-shaped and three-sided form in older plots of passages but in newer constructions the tendency is to follow the 60-40 rule whereby Iranian construction law states that in a plot of land, 60% can consist of built matter, while 40% must be devoted to open space such as gardens (Figure 7.26).

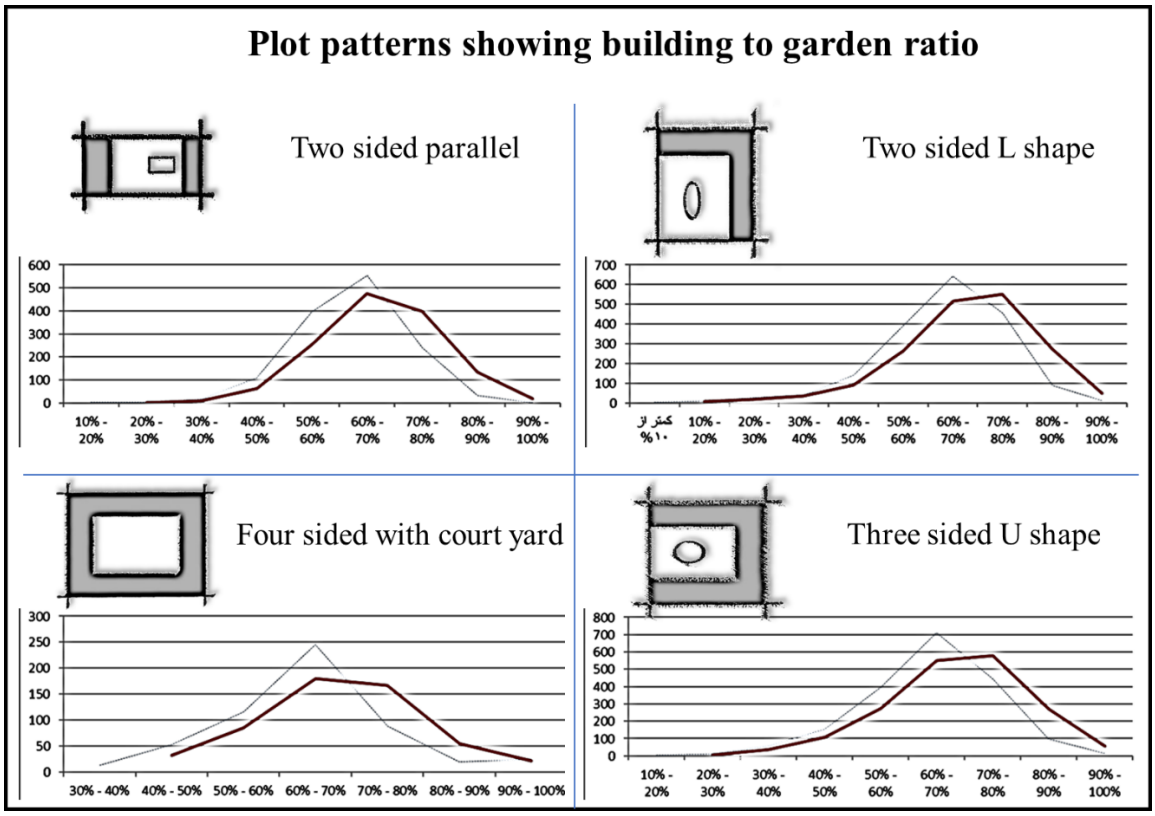

Figure 7. 26 The plot patterns showing building to garden ratio around Emamzadeh-Zanjiri passage. (Source: Author based on Shiraz municipality data).

The direction of passages is a result of two major factors, namely structural elements such as the Bazaar, Shah-Cheragh, and Grand Mosque and water features meet at this point in the core in a star-shape. The lighting sources and electricity transmission network in this passage are implemented by electrical installations on wooden poles. The electrical posts have been installed at irregular intervals along the passage. The passage lacks a pavement; also, there are some water ditches and channels at certain points along the path.

7.9.2 Urban design qualities of the passage

Permeability

According to the literature review, the historical role of this axis was in providing access and a connection between the eastern side and the central features of Shiraz's historical core that includes Shah-Cheragh, the Grand Mosque, and the Grand Market (Figure 7.27).

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Figure 7. 27 The location of the passage within the case study area and its position between the Shah-Cheragh Mosque and Grand Bazaar, (Source: Shiraz Municipality anotated by Author).

However, it enjoys a less distinguished history and lesser importance for transit compared to the northern passage of this area (the current Lotf-Ali-khan Street), that plays an important role in this neighbourhood.

This passage is well connected to the zone of main and structural elements in historic core and it is placed at first level in terms of importance for access and connection with major landmarks. This passage leads to certain distinctive features such as the Hajji Market and Shah-Cheragh market and complex at the end of its path (Figure 7.27). The axis includes

strong spatial links and a connection with the eastern localities in the historic core. Likewise, it connects the zone of Abu-Zareh to the valuable central zone of the historic fabric. The connection point of the path is not well linked to Darb-E-Shikh Street and the passage's spatial continuity with central features has been reduced as a result of widening this passage. This passage starts in the north-eastern zone of the Balakafd neighbourhood and passes through the Eshagh-Beig and Bazaar-E-Morgh localities. In fact, it connects the eastern side of the Balakafd locality with the centre of Bazaar-Morgh, (Figure 7.28).

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Figure 7. 28 Situation of Emamzadeh-Zanjiri Passage and its expansion to the centre of the neighbourhood. (Source: Shiraz Municipality anotated by Author).

Variety of land use and of buildings

Widening the street called Darb-E-Shikh Alley (Figure 7.29), has created a type of spatial discontinuity in the sequence of passage course. Generally, due to basic developments in today's Lotf-Ali-Khan Street in the north and Bein-Al-Haramein Zone in the south of the aforesaid passage (Emamzadeh-Zanjiri Alley), this axis has been less subject to change and development. For instance, this axis offers views of historic value which have been conserved in some sections of the passage, with symbolic elements such as the dome of the Emamzadeh-Zanjiri Building and the Nasir-Al-Molk Mosque. Figure 7.29 shows the

layers of analysis with the locations of buildings that are classes as valuable under various criteria (religious, cultural, historic).

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Figure 7. 29 Layers of analysis to show the location of different classes of valuable buildings in Zone 2 and location of valuable buildings in Emamzadeh-Zanjiri passage (Source: Shiraz Municipality, annotated by author).

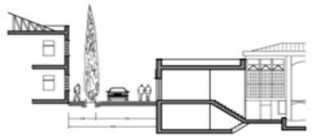
A lack of listed buildings in the eastern part of the passage is followed by a low density of listed buildings. The area from Darb-E-Shikh Street towards the western side is characterised by a high population density and a significant number of listed buildings so that there is no possibility for widening the passage or demolition of bodies in this zone. This quality increases as one approaches the west and central part of the complex. Several cases of valuable architectural portals, three sunshades and decorations with parking at the corners can be observed along this passage (Figure 7.30).

Figure 7. 30 The location of valuable architectural elements around Emamzadeh-Zanjiri Passage. (Source: Author).

A sense of enclosure increases in this path as one move from east to west. The enclosure and wall-to-floor general ratio in the western zone is approximately 2:1. There is a relative sense of enclosure in the eastern zone. Due to an approximate ratio of 1:1 there is a total sense of enclosure in the space in the western part of this passage in which this sense differs from one of its several scenes to another (Figure 7.31).

The lateral transparency also increases as one goes from east to west in this passage. It is due to increased transparency of bodies and also the quality of interaction between the walls and the passage. This passage enjoys visual permeability as well and this is experienced through the passage by spatial resolution.

SUB-CASE STUDY TWO

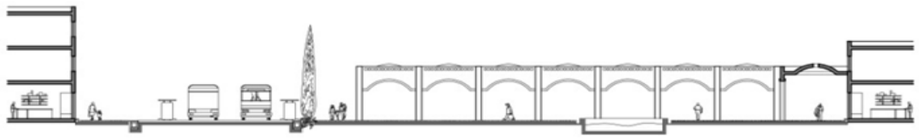


Section V The west side of passage with pavement

Scale: 1:300

Section H The main entrance to the historic zone from Lotf-Ali-Khan street

Scale: 1:300



Section T The square in the north of the case study zone between Vakil Bazaar and Lotf-Ali-Khan street

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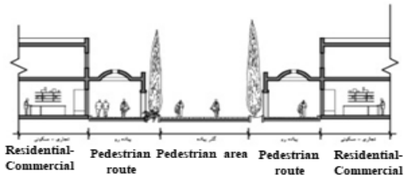

Section A Ravagh Bein-Al-Haramain

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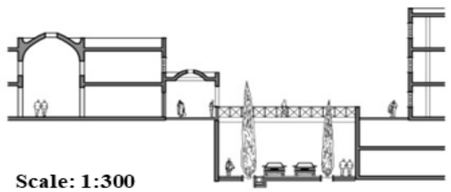

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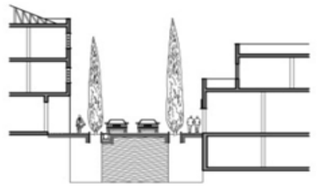
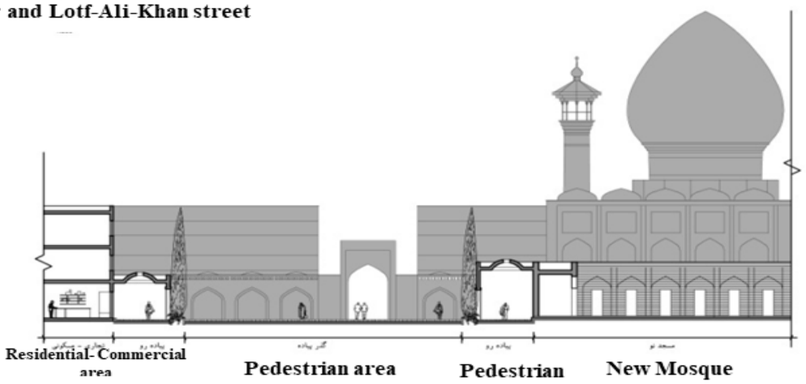
Section Y The southern passage of Bein-Al-Haramain with pavement



Section L The main entrance to the historic zone

Scale: 1:300



Section B Western passage

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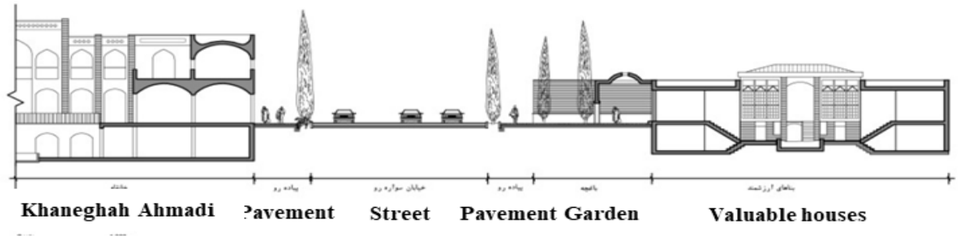

Section J Western passage

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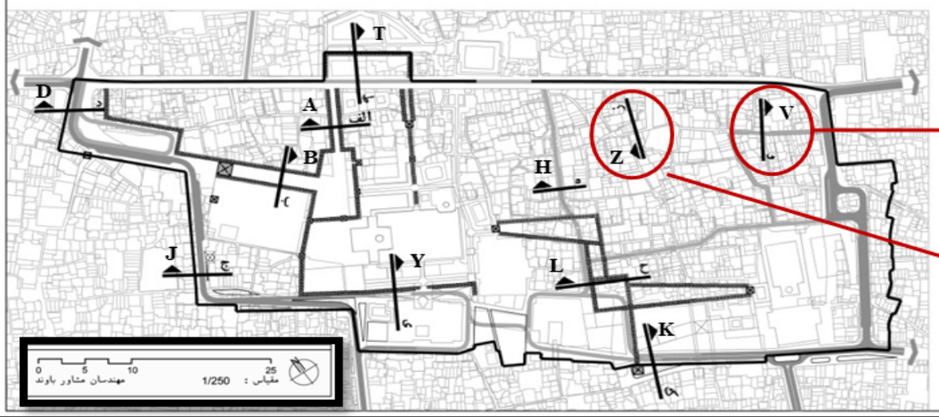

Section Z passage width 4m

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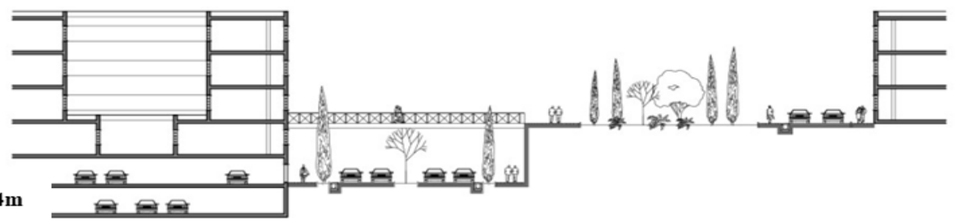

Section K Bein-Al-Haramain passage

Scale: 1:300

Figure 7. 31 Street cross-sections showing width of passages relative to height of buildings in sub-case study 2. Sections V and Z refer to Emamzadeh passage (Source: Author based on Shiraz Municipality data).

Legibility

Discussion with a senior expert of Shiraz Municipality (Appendix 1, Question 5), revealed that Emamzadeh-Zanjiri, the Nasir-Al-Molk Mosque, Sadrabad-Baths and Karbalyeeha Hosseiniyeh are considered as the most widely used public facilities and services in this passage. Similarly, this passage leads to some elements such as Hakim School, Hajji Market, and Shah-Cheragh Market at the end of its path (Figure 7.32).

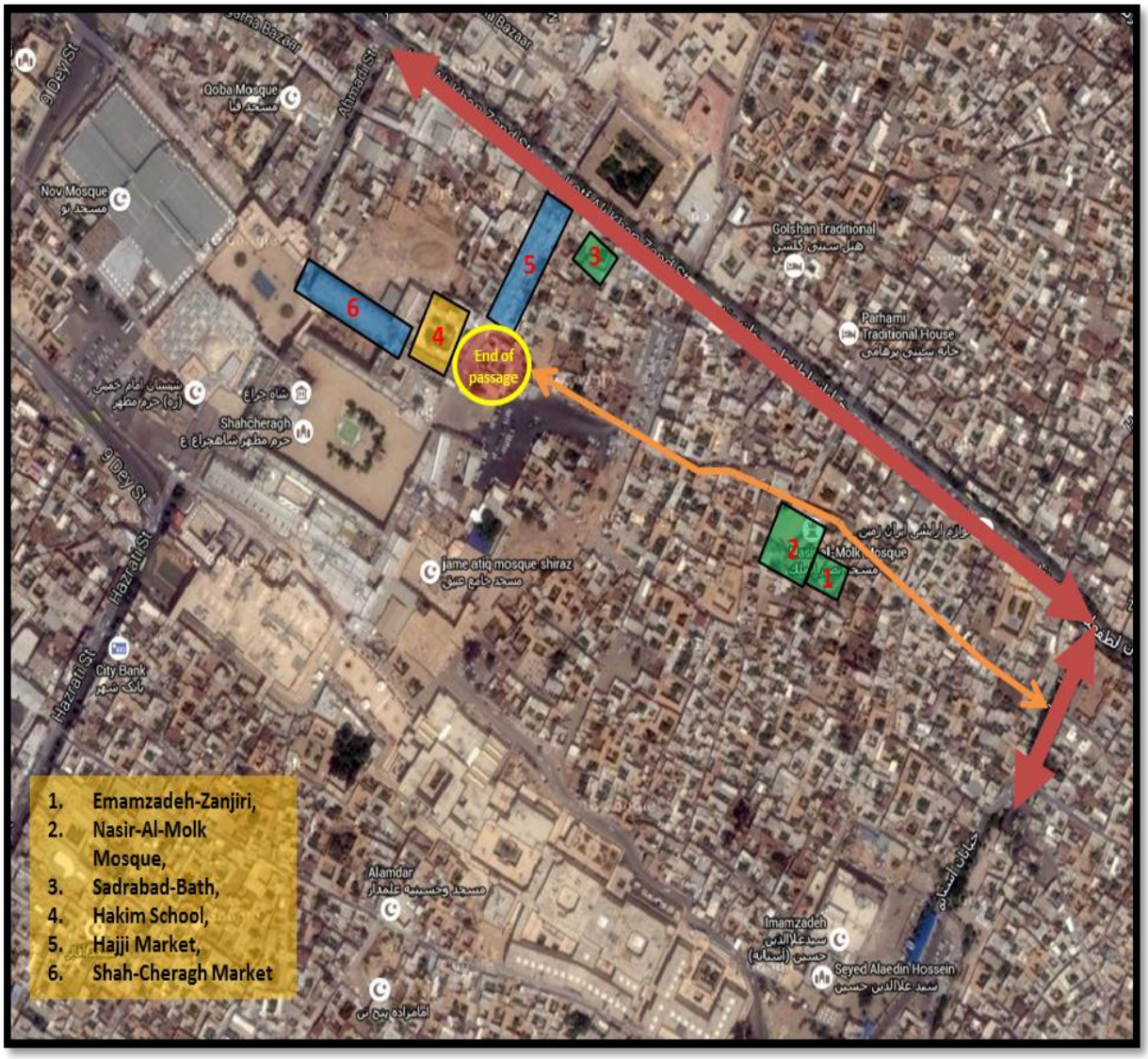

Figure 7. 32 Situation of Emamzadeh-Zanjiri Passage with general uses and public services and distinctive features. (Source: Googel Map anotated by Author).

Due to the presence of landmarks at the beginning and end of axis, this passage is well defined by Shah-Cheragh, Grand Mosque, and Market. This definition at the start and end as well as the presence of some distinctive landmarks in this passage route has highly strengthened the quality of legibility in this axis. Similarly, this passage enjoys a lot of visual penetration with direct axial views to symbolic elements, and very distinctive views which represent the local identity and are important for attracting visitors.

Analysis of maps and fieldwork observation show that the degree of variation and spatial contrasts through the course of this passage make it immediately recognizable as an organic and historic axis. This zone leads along this path and the sequence of spatial contrasts are seen in changes of direction, sequences of enclosed and open spaces as well as urban design conservation principles. Similarly, due to enjoying specific morphological and visual qualities (colour and local and traditional structural themes in walls and special features like sunshades and architectural decorations etc.), (Figure 7.30) this axis is placed at a relatively appropriate situation, particularly in unchanged western parts of the passage.

Overall, due to its organic nature as well as a logical sequence of distinct uses, this passage meets the expected quality of visual scenes and spatial and morphological contrasts.

Resilience

Demolished and dilapidated buildings and visual pollution of the passage's appearance as well as basic changes are more conspicuous than in other passages. The basic problems concerning the passage are as follows:

- Problem of passage asphalt and lack of air flow and moisture exchanges is a destructive factor for building frontages in some parts, especially in the western zone.
- Damage caused by interference of vehicular and pedestrian movement in some parts of the passage
- The author observed that noise pollution from cars, and coppersmiths in the Grand Bazaar (to the northeast of this passage, Figure 7.21) causes disruption to inhabitants and passers-by and poses a threat to historic monuments.

Vitality in this passage is mainly the product of its essential role in the movement system. The grouping together of trades facilitates socio-economic activities and this can be

proved by the presence of features such as the Grand Bazaar, mosques and Bein-Al-Haramein shopping centre, which attract people. Vitality has different qualities in various sections of this passage. The potential for social activity in the passage increases as one moves from east to west. Certain points of this passage have special potential for improvement with covered passages and reconstruction of dilapidated shops, which can also strengthen social activity. The Nasir Al-Molk complex is the most distinctive example of these points.

This passage is pedestrianised and occupies a crucial position in the movement system of the fabric. Due to valuable buildings and narrow width, no vehicle could pass through this passage due to the lack of space in Sheikh Door Street to the west, but consideration should be given to the provision of parking spaces and emergency vehicles. This activity may be justified for the following reasons:

- Analysis of the role and function of this passage in the movement system and provision of access particularly for pedestrians (individual and collective)
- The important role played by this passage as a pedestrian connection between the gate zone on the eastern edge of the historic core with the valuable central zone
- Valuable morphological and spatial qualities and features as well as specific commercial functions and those associated with pilgrimages.

According to the conducted surveys (Appendix 4), the passage can be categorised as having Grade 1 listed status (Figure 7.30). This determines the method of intervention and highlights the necessity of conserving its role in the pedestrian movement system. Analysis of interviews with local politicians and municipality representatives (Appendix 1) identified the following approaches for rehabilitating the quality of urban spaces in this neighbourhood are needed:

- Improving accessibility between neighbourhoods and commercial zones
- Renewing the passage infrastructure
- Improving the quality of urban spaces and urban services by widening some of the passages, resurfacing roads and renewing shop and house exteriors
- Preserving and reconstruct old buildings
- Designing an urban green area for local residents

7.10 Conclusion to physical form

As in the previous case study, it was established that passages played a key role in shaping these historic neighbourhoods. It was also found that these neighbourhoods are more strongly influenced by religion and the economy than residential status due to the location of several important mosques and historical Bazaars in this area. On the other hand, it can be stated that these passages constitute parts of public urban areas that connect different parts of these neighbourhoods and which support different urban activities such as pilgrimages and trade. From analysis of the passages in sub-case study no.2 their different aspects can be categorized in terms of their characteristics and their various functions, which are as follows:

- These passages link commercial and religious areas to the residential parts of these neighbourhoods.
- These passages are unique in character due to their historical record and the link between different components in the context of their neighbourhood.
- These passages can play a key role in improving the performance of the economy and attracting religious fidelity.

It is important to repair these passages' elevations and their infrastructures; redesign some parts of the passages' walls; and to refurbish the flooring. It is also necessary to pay attention to improving the quality of urban services; to design street furniture in harmony with the character of these passages; redesign the lighting of these passages; improve urban safety and the surface water and sewage disposal systems.

This shows how these passages are vital for shaping these historical neighbourhoods. It is necessary to pay attention to their role in the rehabilitation of historic areas in Shiraz's central historic core.

7.11 SWOB analysis of Urban policies, socio-culture and physical form

According to the conceptual framework, one of the important factors with a significant influence on rehabilitation of historic cities were urban development policies. Hence, based on information collected in fieldwork study and subjected to SWOB analysis, Table 7.12 presents some angles of this investigation, as follows:

Subjects	Urban policies
Strengths	➢ Potential revenue of valuable architectural elements and urban areas through tourism ➢ Codification of a program of urban development from the municipality and definition of strategies and objectives of management at regional level ➢ Strong pedestrian access throughout the studied area according to the analysis of streets and historical trails ➢ Road reform improvements and widening in historic passages to improve emergency access in the case-study area.
Weakness	➢ Lack of appropriate mechanism and tools to communicate with residents ➢ Lack of funding and credit relative to the size and performance of municipal activities ➢ Poverty and low socio-economic levels of most residents in this area and the lack of ability to pay council tax and financial participation ➢ The lack of a management entity to coordinate government agencies and institutions in order to define and implement urban development, reconstruction and improvement projects at the neighborhood level ➢ Lack of street network in the case-study area where few passages have been widened sufficiently ➢ Lack of hierarchy of access and performance of the streets network at the studied area ➢ Weakness in traffic management ➢ Poor accessibility in the internal parts of the case-study area
Opportunities	➢ The existence of the necessary support and protection to attract private sector investments at neighborhood level ➢ Attempting self-financing of the municipality and providing revenue resources due to the necessary legal mechanisms at neighborhood level ➢ The development of the organizational and administrative structure to promote the communication of community centers with the municipality at neighborhood level ➢ Potential for the construction and development of multi-storey car parks in the case-study area in vacant spaces and dilapidated buildings ➢ The municipality consideration of expansion of public transportation and pedestrian movement in the case-study area
Barriers	➢ The existence of distrust among people and their passive interaction regarding participation in the field of urban management at neighbourhood level ➢ The lack of transparency of the regulations regarding the support and attraction of private sector investment in the area of development of the historic fabric at neighborhood level ➢ Enforced public participation which causes reluctance from residents to participate ➢ The lack of clarity of the regulations and guidelines specific to the proposals for comprehensive, detailed plans and the uncertainty of the municipality in this issue. ➢ The current state of accessibility of the historic fabric in the case-study area is a result of the use of protection and restoration approaches, rather than considering other approaches. Thus, practical solutions are limited to the development and enhancement of the historic fabric

Table 7. 12 Zone 2 SWOB analysis regarding urban policies.

Table 7.13 presents the SWOB analysis results regarding socio-cultural and economic activity based on interviews and questionnaires collected in the field work study.

Subjects	Socio-Cultural & Economy
Strengths	➢ Existence of appropriate platform for creation of job opportunities in tourism affairs ➢ Existence of areas with commercial potential in this neighbourhood ➢ The capacity to expand activities related to religious and cultural buildings due to the presence of the Shah-Cheragh Mosque and other religious sites in this historical area. ➢ The existence of traditional social protection systems in this historic neighbourhood ➢ The existence of charitable foundations and institutions in this historical area
Weakness	➢ Decreasing residential values due to the collapse of social activities, such as residential and touristic activity, and increasing business activity without improving the communication capacity, resulting in traffic and air pollution ➢ The economic inefficiency of small and medium-sized enterprises in the study area ➢ The occupancy of people with service occupations and low-level occupations in the study area as a result of the collapse of the social stratification system and the weakening of residents' associations ➢ Increased social imbalances in the neighbourhood due to the reduction of informal supervision and the inadequate performance of formal oversight ➢ Condominiums, private and endowed property resulting in the creation of obstacles to reconstruction and renovation of historic buildings
Opportunities	➢ Investment in the case-study area due to the location in the city centre, the existence of social activities and being known as the religious and cultural heart of the city ➢ The desire of the people and foreign and domestic tourists to visit pilgrimage and historical sites ➢ The tendency of urban management to modernize and improve historical sites and buildings in the case-study area
Barriers	➢ The lack of incentive for private sector investment due to the lack of clear urban management policies and plans ➢ The lack of coordination of modernization programmes at neighbourhood and city levels with economic patterns at national and global levels ➢ The lack of organization of tourist facilities and the lack of accountability of relevant authorities to the needs of this sector, resulting in the reduction in motivation of foreign and domestic tourists to visit the historic city ➢ Reducing the trend towards middle-to-high income in the neighbourhood, eventually resulting in a negative cycle of physical and social depreciation ➢ The desire to develop business centres in this neighbourhood

Table 7. 13 Zone 2 SWOB analysis regarding Socio-Cultural & Economic Dimensions.

Table 7.14 presents the physical strengths, weaknesses, opportunities and threats of sub-case study no.2, as follows:

Subjects	Physical
Strengths	➢ The presence of valuable historic cultural and religious elements in this neighbourhood and thus the promotion of its important role in the city ➢ The existence of historic identity and memory, due to the historical buildings and spaces in this neighbourhood ➢ The presence of some of the main elements and structures of the city, which are the backbone of the historic centre, in this neighbourhood, such as the Shah-Cheragh Mosque, the New Mosque, the Atigh Mosque, Bein-Al-Haramein Bazaar, Mansouriyeh school, etc. ➢ The function of the historical fabric as the religious centre of the city due to the presence of numerous mosques in this neighbourhood
Weakness	➢ Lack of green spaces and parks and spaces for spending leisure time in the neighbourhood ➢ Lack of health centres in this neighbourhood ➢ Lack of education centres and sports centres in the neighbourhood ➢ The existence of winding alleys and streets in this neighbourhood which cause insecurity
Opportunities	➢ The tendency to develop commercial activities and social services in this neighbourhood ➢ The existence of important religious, economic, cultural and social capacities in this neighbourhood and its location in the centre of the historic fabric ➢ The tendency of urban management and public and governmental institutions to renovate and improve historic buildings in this neighbourhood ➢ The possibility of using the existing space in the Bein-Al-Haramein area to strengthen the backbone of the historic fabric to meet social and economic needs at a neighbourhood and city-wide level. ➢ The tendency to improve public and private transportation and pedestrian routes in different parts of this neighbourhood.
Barriers	➢ Tendency to build more shopping centres and malls without considering the infrastructure needed (space for warehouses etc). ➢ Demolition of houses without consulting government plans. ➢ The existence of different ownerships such as charitable foundations, shared ownership, private ownership, which causes difficulties in the process of rehabilitation of buildings and historic fabric in this area. ➢ Tendency to use commercial approaches without sustainable development in terms of cultural and identity factors in this neighbourhood.

Table 7. 14 Zone 2 SWOB analysis with regard to Physical dimensions.

Conclusion

In the introduction of this chapter, two questions were asked. The aim of this chapter was to find the answer to those questions, as follows:

"How do religion, politics and economics affect the urban form at a (macro and) micro level?"

"How can a rehabilitation approach improve both the socio-cultural environment and physical form at a micro level?"

In answer to question number 1 it was established that Zone 2 was largely shaped by trade routes and religious buildings. Also, over time, some elements such as schools, local shops and residential areas were added to these neighbourhoods and passages played a key role in this area in shaping and organising urban facilities. Pilgrim routes in this zone mean it was necessary to expand the passages and streets to improve the accessibility, connectivity, and permeability of this neighbourhood. The economy, religion and politics have affected the formation of this area. Three existing famous mosques, a religious school, a large Bazaar and its complex buildings and local shops are evidence of how these factors influenced the formation of this historic neighbourhood, based on their interconnections and roles.

Finally, to answer the second question, several recommendations can be made that can help approaches to rehabilitation in these neighbourhoods, which are as follows:

- Based on the conclusion of Chapter 5 and SWOB analysis results (Appendix 5), the best method for improving this neighbourhood might be based on mixed approaches such as rehabilitation combined with retrofitting and renewal.
- Rehabilitation of this zone needs to consider the religious status of residents and their ethnicity. In order to improve the livelihoods of the residents, low literacy levels need to be addressed through educational opportunities and increasing trade skills to improve employment opportunities.
- As outlined above, the rehabilitation approach could help this neighbourhood to recuperate, preserve, protect, consolidate, improve, revitalize, restore and convert historic urban areas and urban infrastructures.

The above explanations and RADAR analysis identify the importance of each key factor for rehabilitation in sub-case study no.2. Figure 7.33 shows the priority of each those key elements in the process of rehabilitation with attention to the current situation of sub-case study no.2 in Shiraz's historic core. It shows that economic and socio-cultural factors, followed by physical formation have the highest priority for rehabilitation of the historic fabric in this area.

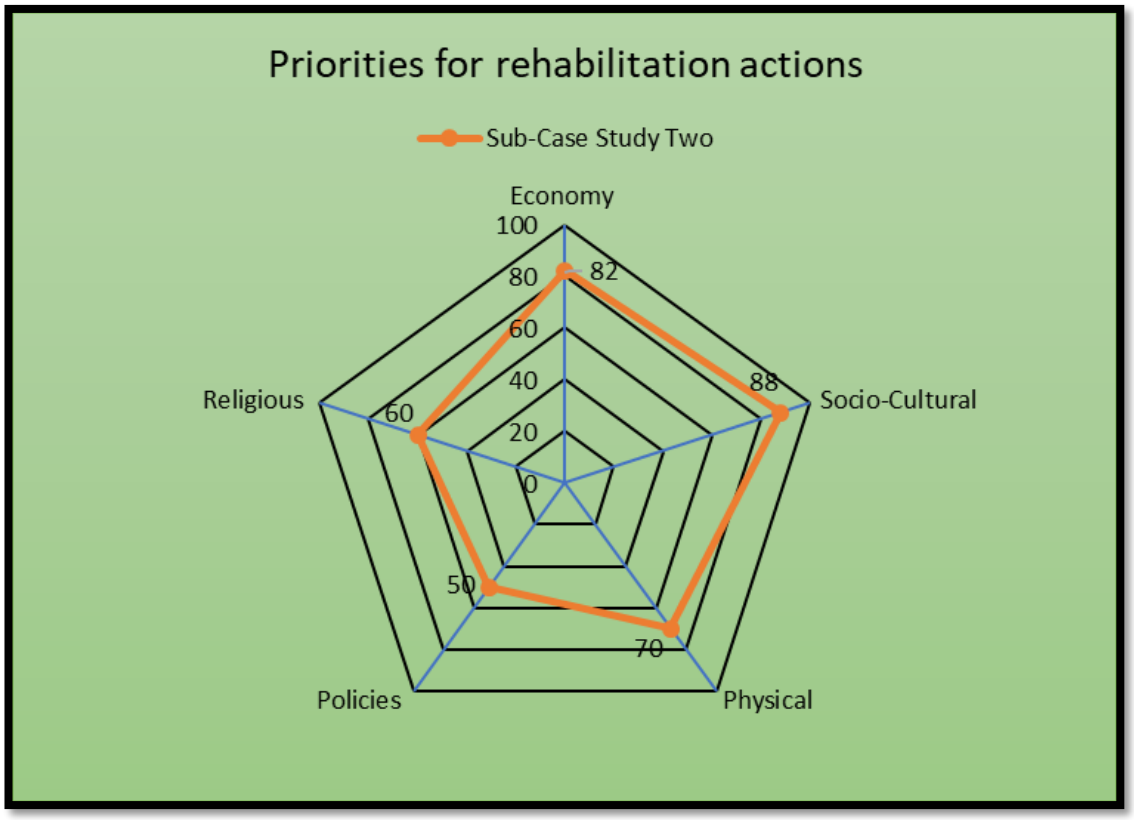

Figure 7. 33 The priority of each key factor in the rehabilitation process in Zone 2; (Source Author).

The numbers on the RADAR analysis chart are derived from the questionnaires answered by residents of Zone 2. They were asked about their satisfaction with different aspects of the neighbourhood and the results were analysed to show the percentages of residents who felt that there was a need for intervention in each aspect. The above analysis shows that 88% of residents surveyed were dissatisfied with socio-cultural aspects, and therefore this has the highest priority for intervention. Economy is the next highest priority at 82% dissatisfaction, physical form has third priority (70% dissatisfaction) etc. This helps this research to develop a rehabilitation strategy, based on the consideration of these priorities at neighbourhood level.

This pattern of analysis can be applied to other neighbourhoods in Shiraz historic fabric to find the priorities of each key factor of rehabilitation in each neighbourhood, and then a macro-level rehabilitation strategy can be developed.

RADAR analysis was completed for both sub-case study one and two (Figure 6.42 and Figure 7.33). In this regard, a comparison is needed between the two RADAR analyses to compare the rehabilitation factors, in order to identify the most important factor to be tackled in terms of rehabilitation based on these sub-case studies. This method can be used for the remaining historic neighbourhoods in Shiraz historic fabric and other historic cities in Iran. The result of the comparison is shown in Figure 7.34. This shows, using the mean score of the two sub-case studies that the strategy should focus on economy, followed by socio-cultural factors and physical form, then politics and lastly, religion.

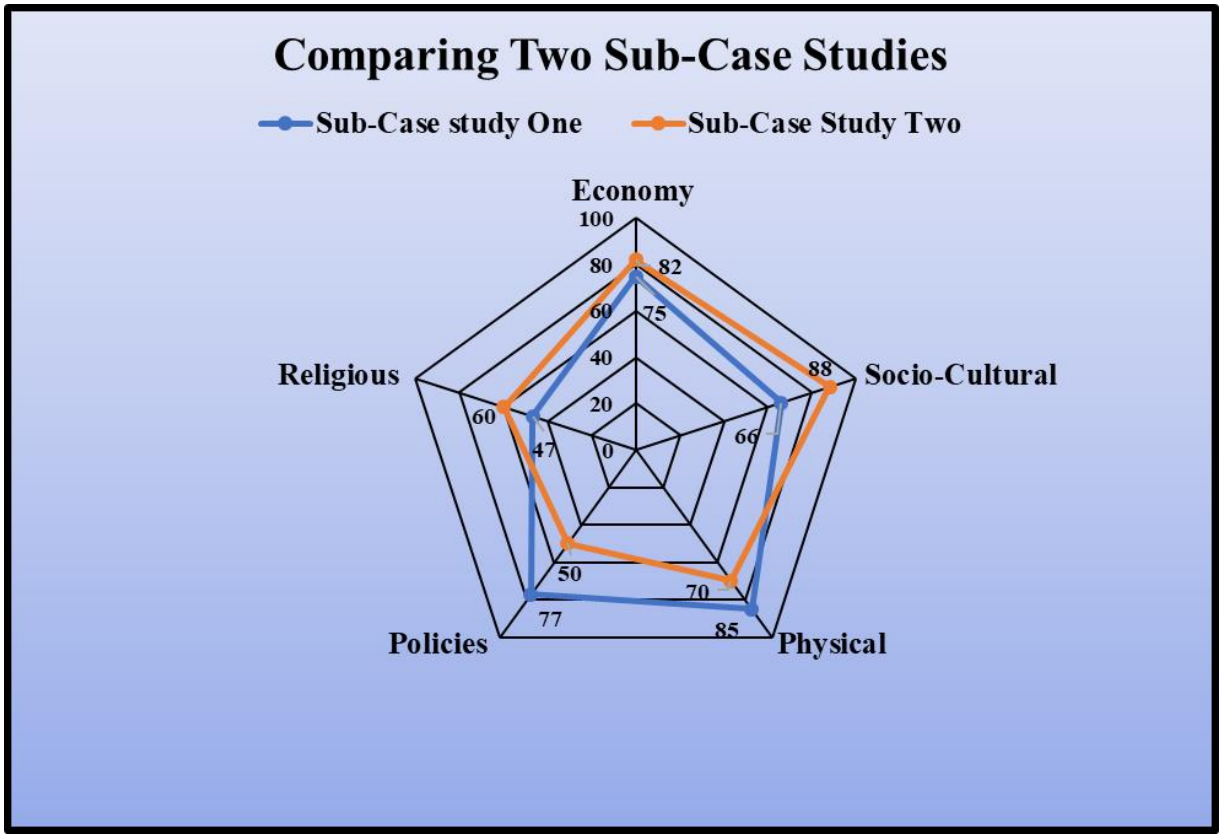

Figure 7. 34 Comparison of the priority of each key factor in the rehabilitation process in sub-case studies 1 and 2; (Source Author).

The following chapter, based on objective five of this research and the integrated conceptual framework, presents the findings of the micro and macro scale in relation to each key factor of rehabilitation. Based on the findings, final recommendations are presented at macro and micro scale.

Chapter Eight: Key findings and Recommendations for the rehabilitation of the historic fabric in Shiraz

Introduction

This chapter deals with objective five, which is: *'To use the findings to propose methods and techniques for rehabilitating the historic districts of Shiraz'*. The research plan of work section, presented in the Introduction chapter, Figure I.3, comprises two sections: the findings and the recommendations. Each section focuses on both Macro-level and Micro-level. This chapter uses the conceptual framework and methodology presented in Chapters 3 and 4 of this research in order to achieve this goal, which will answer the research question, 8. *"What will be the best urban design approach for rehabilitation of Shiraz historic fabric?* It will also answer the question: *"How can a rehabilitation approach in Shiraz be applied to other Iranian historic cities?"* At the end of this chapter the Shiraz historic map is presented, showing different zones of rehabilitation, the methods that should be applied, the relevant techniques and the actors that should take responsibilities for applying rehabilitation actions.

From the findings of the integrated conceptual framework, five key challenges were identified in the process of rehabilitation and findings from analysis of the two sub-case studies identified the Strength, Weakness, Opportunities and Barriers of each sub-case study. However, all those results represent small parts of Shiraz historic fabric as a whole. Hence, the conclusion of all macro and micro analysis can be generalised to the whole historic fabric of Shiraz city as it all has the same historical background and characteristics.

In addition, this chapter will link each recommendation to different parts of livelihood theory and urban design approaches to establish and support final recommendations in relation to each of the five key elements (religious, political, economic, socio-cultural and physical) for rehabilitation. In this regard, this chapter is also divided into five parts each of which will present relevant specific recommendations in relation to each key factor.

Finally, this chapter presents key recommendations for the rehabilitation of Shiraz historic fabric.

8.1 Key findings derived from the case studies

Based on the methodology chapter, section 4.5, this research collected relevant data in relation to the key factors of rehabilitation (religion, politics, economics, socio-culture and physical form). Four different methods, namely GIS, SPSS, SWOB and RADAR analysis, were used to analyse the data collected in each sector, which were presented in Chapter 5 at macro-level and Chapters 6 and 7 at micro-level. The following section presents the general key findings and detailed findings about religion, politics, economics, socio-culture and physical form at macro level and micro level.

8.1.1 General Key findings

The key general findings present the analysis outcome in relation to the five key factors of rehabilitation which were mainly identified from analysis at macro level. These findings are as follows:

General findings of the research
There is a general feeling of cultural appreciation for the historic core.
There are some residents with skills which have the potential to bring in an income that is not currently being maximised.
Policies and measures applied have been inconsistent and do not protect the interests of low-income residents. Homeowners are not willing or not able to reconstruct old buildings and they rent them out for a high price. Some homes were weakened when roads were widened. As a result, many residents of Fars ethnicity are leaving the historic core due to high rents and poor-quality homes, and residents of other ethnicities are coming to live in the historic core who do not have cultural ties to the historic fabric, and therefore have less appreciation for the cultural heritage.
Planning thus far has been based on Western models and is not best suited or culturally appropriate for Shiraz historic core and has resulted in the demolition of some historic buildings.
Some historic buildings have been demolished or left in a state of disrepair. Other buildings and spaces were built for purposes that no longer exist and are no longer compatible with contemporary functions.
Accessibility by car to some parts of the historic core is limited, and therefore the fabric does not serve the needs of contemporary life. Residents therefore find it difficult to access employment, health, education and commercial services. Furthermore, some trades and suppliers are not well connected due to previous established routes being altered. This results in an increased volume of traffic between warehouses and stores. Some buildings have high religious significance for Shia Muslims and attract many pilgrims. This brings income to the area, although the infrastructure is not currently able to support the volume of pilgrims.
Bureaucracy has hampered rehabilitation and some departments which need to collaborate in the rehabilitation initiatives are not properly integrated.

Table 8. 1 General findings of the research.

Figure 8.1 presents these findings on the map of Shiraz historic core in order to show where these issues are most significant. This helps this research to present practical recommendations for the rehabilitation of Shiraz historic core; the recommendations are presented in the second section of this chapter.

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Figure 8. 1 Generalised findings of the research in Shiraz historic core (Source: Author, annotating Shiraz Municipality map).

In section 6.13 of Chapter 6, Tables 6.18, 6.19 and 6.20, and sections 7.11 of Chapter 7, the religious, political, economic, socio-cultural and physical factors were analysed. The analysis identified a number of problems and limitations regarding the rehabilitation of historic neighbourhoods in Shiraz's historic fabric. Hence, the following parts present the findings based on the analysis of interviews, questionnaires and fieldwork observations in Shiraz historic core and both sub-case studies.

8.1.2 Key findings regarding Religion

Macro-level findings

As stated in Chapter 5, section 5.1, the outcome of the analysis of religious aspects shows that in Islamic ideology cities consist of: a centre of religion (Grand Mosque); a centre of politics (Castle or *Kohandej*); a centre of economy (Bazaar); socio-cultural centres (neighbourhoods or *Sharestan*), and areas outside of the city wall such as the cemetery (*Houmeh*). All of these can be seen in Iranian cities, including Shiraz historic core, where the Shah-Cheragh Mosque is a focal point. However, contemporary developments have failed to recognise the importance of religion in the rehabilitation of Islamic cities, including Shiraz. In order to identify how religion affects Iranian cities at micro level, this research examined two sub-case studies in chapters 6 and 7, of which the findings are as follows.

Micro-level findings

According to the conceptual framework it was identified that religion affects different neighbourhoods in the historic fabric in different ways, due to the presence of mosques and shrines. Therefore, this section presents the findings of the analysis of the sub-case studies separately.

In Chapter 6 section 6.2, it was identified that religious buildings influenced the formation of passages and these passages are used for pilgrim activities. Consequently, the passages play a vital role in the movement system. It was also identified that more than 100% of residents are Muslim and 83% are Shia Muslim. It is therefore clear that Islam plays the key role in the formation of Lab-Abb neighbourhood.

In Chapter 7 section 7.2, it was identified that Islamic law and the presence of several shrines influenced the formation of Bazaar-Morgh and Eshagh-Baigh neighbourhood, and also influenced the buildings in the area, since the heights of the roofs have to be lower than those of the shrines and mosques. Following these findings, Table 8.2 presents the current situation in both sub-case studies based on SWOB analysis.

Field	Strengths	Weaknesses	Opportunities	Threats
Religion	➢ Extension of activities relating to religious and cultural places, due to the existence of Shah-cheragh and other religious places ➢ The existence of highly-regarded religious and cultural places and historical centres ➢ Existing traditional systems and social support in some parts ➢ -Existing endowment and charity support	➢ Inappropriate use of the talents ➢ Tourism affected by religious activities ➢ High levels of people with poor literacy and lack of skills ➢ Variation of social investment due to diversity of races without social integration ➢ - Reduced quality of life and reduced life expectancy ➢ Weakened social norms leading to social anomie ➢ Private and endowment possession, creating problems and obstacles for rebuilding	➢ Tendency to invest in the centre of the neighbourhood, central activities and religious centre ➢ Tendency to support, protect and consult civic organisation and NGOs ➢ Tendency of domestic and foreign tourists to visit tourist sights and shrines ➢ Tendency for public organisations to invest in the old context ➢ -Tendency of urban management to rebuild, develop and revive religious buildings and areas	➢ Reduced population levels in the cultural, historical region, and low-income, Afghan and rural migrants ➢ Low motivation to invest in private areas due to unclear policies and poor urban management ➢ Rebuilding plans failing to be co-ordinated with facilities ➢ Disorganisation of tourist organisations and not responding to tourists' needs leading to reduced motivation of domestic and foreign tourists

Table 8. 2 Sub-case studies SWOB analysis result in relation to Religious dimensions.

8.1.3 Political findings

Macro-level findings

At macro level, this research identified in Sections 5.2 and 5.3 that politics affects several dimensions of rehabilitation in the planning system. For example, two contrasting viewpoints, visionary paternalism and conservative traditionalism, which have both influenced planning in Iranian cities, yet each emphasises different points, resulting in tension and confusion in the planning system. It was also identified in section 5.2.4 that planning in Iran is governed by a variety of national and international planning laws and charters, such as the Iran National Monuments Protection Law and the Athens Charter, as well as Islamic law. Section 5.24 described how Western planning methodology has also affected planning in Iran by proposing a new version of urban design and planning analysis such as road networks, blocks, plots, buildings and land use. However, section 5.6.5 identified that because in historic Iranian cities the majority of historic fabric is organic and the housing typology follows traditions and climatic considerations, these propositions are not always compatible with the fabric as shown in Figure 5.13. Evaluation of the master plan in Shiraz historic core in section 5.2.5 shows that: some urban structures have partially disappeared; modernisation has dominated parts of the city causing decline in the importance of some elements such as the Royal District and movement of commercial units, and the traffic is not well adapted to the city pattern. Section 5.3.5 found that recent developments in planning in Shiraz proposed to: relocate services supplying the bazaar to be closer to the bazaar; revitalise neighbourhood centres; prevent demolition of houses; prevent construction of new streets and improve procedures for recognising and protecting old houses. Section 5.8.3 established that planners have prioritised economic growth in their actions and have thus demolished parts of the historic fabric without respect for its value or the unity of neighbourhoods. However, the municipality has identified different zones with different priorities for rehabilitation.

These findings occur at macro level. According to the integrated conceptual framework this research also examined the role of politics at micro level which is presented below.

Micro-level findings

According to the conceptual framework, policies are applied to the whole historic fabric rather than individual zones. These policies include Islamic law, development plans, detailed plans and the connections between the different actors. Therefore, this section presents the findings for both sub-case studies together.

Analysis of information collected during fieldwork and presented in Tables 6.6 and Figure 7.6 in section 6.3 of Chapter 6 and section 7.3 of Chapter 7, identified that policies play a key role in rehabilitation of historic neighbourhoods. The findings related to politics are as follows:

Micro-level political findings of the research
Absence of inter-sectorial management system for defining and implementing development plans and projects at local level and inadequacy of existing management organisation structure
Lack of land and property database management in the municipality of historical fabric of Shiraz
Idealistic nature of plans and, consequently, the inconsistency of building regulations with the current situation in the historic core, resulting in repeated violation of the regulations
Imbalance between the needs of preserving cultural values and heritage and the need for modernisation
Existence of interest groups and influential groups, and lack of their serious their failure to stick rigidly to regulations
Insufficiency of municipal funds, resources and lack of reliant and stable financial resources
Lack of appropriate mechanisms and tools to attract citizens' cooperation in governance and urban management;
Lack of regulations and incentives to encourage modernisation and improvements in the texture and even existence of rules preventing improvements.
Existence of condominium endowment ownerships problem and similar problems in reconstruction and modernisation, and serious delays in the modernisation and rehabilitation of the texture
Lack of transparency and consistency of urban management policies and programmes and high risk of investment from the private sector for rehabilitation
Lack of trust between people and their passive attitudes towards the issue of participation in urban management;
Lack of consistent interventions in the historical context, combining modernist, culture-oriented, museum-oriented attitudes, and unplanned ad-hoc interventions.

Table 8. 3 Micro-level political findings.

Therefore, SWOB analysis results presented in Table 8.4, relating to the political aspect of rehabilitation of historic neighbourhoods, shows the following findings:

Field	Strengths	Weaknesses	Opportunities	Threats
Politics & Urban Management	➢ Existing organisation with people skilled in managing foreign affairs ➢ Existing high potential and talent in the historical-cultural context with regard to valuable spaces and income-generating factors by attraction tourism ➢ Existing interaction between municipality and urban council ➢ Increasing attention of urban management to environmental, historical and cultural aspects ➢ Existing five-year plan from municipality with regulating policies and strategies in high levels of urban management	➢ Inappropriate human power of regional urban management with submitted application ➢ Lack of effective mechanisms and tools to communicate with citizens ➢ Inappropriate approved chart with the current situation and lack of legal places of many organisational positions. ➢ Lack of expert forces associated with appropriate experts as scientific and technical forces ➢ Existing administrative bureaucracy processes, consisting of 16 steps for obtaining a construction permit. ➢ Varied income sources for the municipality which are undependable, temporary and unstable. ➢ Insufficiency of equipment for the municipality to execute infrastructure projects ➢ Lack of budget and appropriate credit with performance volume and application of municipality ➢ -Lack of databank of lands and properties in the municipality ➢ Lack of socio-economic base of most citizens and non-payment of municipality tax. ➢ Lack of management infrastructure to define and execute plans and civil projects and insufficiency in the structure of the management organisation	➢ Tendency to support, protect and attract investment from the private sector ➢ Technical personnel for planning and the ability to attract them in different capacities ➢ The municipality's attempt to become self-reliant and provide required financial resources ➢ Tendency to improve and develop the organisational structure in personnel and legal affairs	➢ Existence of distrust among people and their passive behaviour with urban management ➢ Severe weakness of municipality structure and urban management against uncertainty and failure to execute some important projects ➢ Lack of co-ordination between organisations ➢ Unclear regulations and rules about supporting and attracting private-sector investment in civil development of the region ➢ Main dependency of municipality income for construction and little other income ➢ Existence of beneficiary ➢ Unclear regulation and special instructions about upstream plan proposals and the uncertainty of the municipality about this subject

Table 8. 4 Sub-case studies SWOB analysis result in relation to political dimensions.

8.1.4 Economic findings

Macro-level findings

According to Chapter 5, section 5.4 of this research, the bazaar is the centre of all economic activities in Islamic cities and is also one of the key components of an Islamic city. It is organic in formation and flexible in terms of functionality. Furthermore, traditionally the bazaar was accessible from all neighbourhoods in the city and is considered one of the foremost socio-spatial systems in Iranian society. There are different sections to the bazaar as identified in chapter 2, section 2.6, as trades tend to cluster together, for example there may be one section devoted to goldsmiths, another to rug-makers. Figure 8.2 presents the hierarchy of various trades in traditional Bazaars in Islamic cities.

Figure 8.2 has been removed from this version of the thesis due to copyright restrictions

Figure 8. 2 The typical hierarchy of trades in a bazaar in Islamic cities (Source: Lawless and Blake, 2016).

Shiraz bazaar also follows the pattern of the Islamic bazaar which was based on the hierarchy presented above. As mentioned in section 5.5 of Chapter 5, Shiraz bazaar is a connection between the residential, religious and political zones in the historic core,

where several activities of these types occur. This finding is useful to improve each of these aspects by rehabilitating different parts of the bazaar and similarly, urban design qualities such as connectivity and accessibility can be applied to improve the role of this economic centre in Shiraz historic fabric.

According to the analysis of the census data presented in Chapter 5, section 5.4.1, although there are many favourable economic conditions, such as accessibility to national trade routes and low-cost human resources, unemployment rates in the historic core are high, at 13%, and 60% of the population have trouble finding a job or running a business. Despite this, the historic core is attractive to low-income residents, including immigrants, due to low rent and small business activity in the area surrounding the bazaar. Household income is lower and tenancy rates are higher within the historic core than in the rest of Shiraz. Furthermore, there are many vacant commercial premises and many businesses have poor accessibility by car and public transport. Therefore, there is a weakness in economic capital.

Micro-level findings

Chapter 6 section 6.4 identified that the unemployment rate in Lab-Abb neighbourhood is one of the most important issues that affects the livelihood of the residents and the quality of life. Rates of renting properties are high in the centre of the neighbourhood, despite housing prices being low, due to the high proportion of low-income residents in this neighbourhood. High numbers of rented properties mean that the houses are more vulnerable because the owners do not live in the area and the tenants are less likely to invest their time, money and efforts on renovation. Low literacy rates and the high number of pensioners in this neighbourhood contribute to the low employment levels.

Chapter 7, section 7.4 identified that in Bazaar-Morgh and Eshagh-Baigh neighbourhood, the rent costs are high relative to land values, doe to its proximity to several major urban facilities, such as the shopping centre, bazaar and mosques. However, the rates of people with low-paid jobs in this neighbourhood are at the lowest rate of the whole historic core and their livelihoods are medium to low relative to the rates seen in the whole historic core. There is a high level of commercial users because of the existence of the market and high level of business users in this neighbourhood.

According to the analysis of information collected from questionnaires in sub-case studies 1 and 2, in relation to economic aspects Table 6.13 from Chapter 6, Section 7.11 of chapter 7 and Table 8.5 present the result of the SWOB analysis.

Field	Strengths	Weaknesses	Opportunities	Threats
Economic	➢ Becoming the principle centre for distributing clothes throughout the city ➢ Existing traditional systems and economic support in some parts ➢ Existing endowment and charity support ➢ Improved literacy levels and run new business	➢ Reduction in the value of residential buildings due to demolition ➢ Tourism affected by demolition historic areas ➢ -Gradual migration of middle-income and elderly population and increased numbers of low-income population ➢ High levels of people with lack of skills ➢ Small agencies being used inefficiently ➢ High turnover of residents -due to high rents- leading to feeling of not belonging and weakening social partnerships ➢ Poor economy of residents and civil budgets	➢ Tendency to invest in the centre of this neighbourhood ➢ Tendency to support, protect and consult civic organisation and NGOs ➢ -Tendency of domestic and foreign tourists to visit tourist sights and shrines an support local businesses ➢ Tendency for public organisations to invest in the old context	➢ Increasing numbers of gangs and rising criminal behaviour due to social and economic problems ➢ Low motivation to invest in private areas due to unclear policies and poor urban management ➢ Reluctant investors due to return period of investment, economical cost and structural obstacles ➢ Rebuilding plans failing to be co-ordinated with facilities ➢ Continuing influx of low-income residents seeking cheap housing ➢ Disorganisation of tourist organisations and not responding to tourists' needs leading to reduced motivation of domestic and foreign tourists ➢ Incoherence of behaviour towards commercialisation

Table 8. 5 Sub-case studies SWOB analysis result in relation to Economic dimensions.

8.1.5 Socio-cultural findings

Macro-level findings

According to Chapter 5 section 5.5, immigration is one of the socio-cultural factors that has the biggest effect on the historic core. Between 1996 and 2016 the population of the historic core increased by 32%, which is largely accounted for by immigration. Census information shows that the majority of immigrants are not of Fars background, but are of other ethnicities such as Afghan and Turk. It was noted by the municipality in interview that Afghans comprise the largest group of immigrants, and also tend to have the largest

family size. This increases population density in the historic core and can put pressure on the fabric and local services. This immigration also accounts for a fall in literacy levels in the historic core, which in turn leads to lower employment opportunities and less chance for community engagement.

Section 5.5.2 shows that the main reason for choosing to live in the historic core is the low cost of housing.

Analysis in section 5.5.3 shows that social cohesion is rated as 'very poor' by 75% of respondents and that the areas with the best rates of interaction between neighbours also have higher literacy rates.

Section 5.5.4 quotes a report from the Iranian Statistical Centre that shows that the number of inhabitants living in rented housing is significantly higher in the historic core than the rest of the city. As mentioned above, high number of rented properties leaves houses vulnerable to deterioration due to the lack of maintenance. The analysis also found that few residents are inclined to restore their homes.

Sections 5.5.6 identified that the formation of the historic core was influenced by a variety of historic periods and cultures, from pre-Islamic to Islamic times. This shows that different historic houses and monuments which belong to different eras exist in Shiraz historic fabric which influenced the shaping of surrounding areas.

Micro-level findings

Analysis in Chapter 6 section 6.5 found that immigration rates to Lab-Abb neighbourhood were lower than the rest of the historic core and the majority of residents (75%) have Fars ethnicity, with Afghans having the next largest representation. In turn, residents of this neighbourhood report good neighbourhood relations though low participation in community activities. This is significant because people's attachment towards the neighbourhood in which they live which increases likelihood to participate in rehabilitation activities. People's lack of confidence in public and private organisations, especially distrust of government intervention in the process, prevents them from participating in such organisations.

Analysis in Chapter 7 section 7.5.1 showed that Bazaar-Morgh and Eshagh-Baigh neighbourhood has high to medium rates of people leaving the neighbourhood. Section 7.5.2 identified that the presence of important mosques in this neighbourhood has led to

an increased population density around the mosques. This is significant, because it can put pressure on the urban fabric and services.

Some of the main socio-cultural problems in both sub-case studies are summarised as follows:

- Out-migration of native residents of the area who are replaced by new social classes who have little sense of belonging to the area
- Weakness in social capital, weakness in sense of participation, weakness in sense of belonging to the place
- Increased perception of crime and increased feelings of insecurity
- Lack of human resources development (skills and technical knowledge)
- High population density putting pressure on old areas along with negative population growth and a young population
- Ethnic diversity and lack of social cohesion
- Low quality of life in neighbourhoods at the centre of the historic core
- Inefficient use of the skills of local residents

According to the analysis of relevant data collected during fieldwork and presented in Chapter 6, Table 6.15, and section 7.11 of Chapter 7, the results of the SWOB analysis are presented in Table, 8.6.

Field	Strengths	Weaknesses	Opportunities	Threats
Socio-cultural	➢ Becoming the principle centre for distributing clothes throughout the city ➢ The existence of highly-regarded cultural places and historical centres ➢ Existing traditional systems and social support in some parts ➢ Existing endowment and charity support ➢ Relative stability and balance among males and females ➢ Improved literacy levels	➢ Inappropriate use of the talents ➢ Reduction in the value of residential buildings due to demolition. ➢ Tourism affected by demolition which increases the volume of traffic, noise and visual pollution ➢ Negative population growth in the historical centre (from 1956-2003 the population has decreased by 31.16%) ➢ High levels of people with poor literacy ➢ Small agencies being used inefficiently ➢ High turnover of residents - due to high rents- leading to feeling of not belonging and weakening social partnerships ➢ Variation of social investment due to diversity of races without social integration ➢ Reduced quality of life and reduced life expectancy ➢ Increasing social harm in the area by reduced supervision ➢ Private and endowment possession, creating problems and obstacles for rebuilding ➢ Lack of healthcare system in this area.	➢ Tendency to invest in the centre of the neighbourhood, ➢ Tendency to support, protect and consult civic organisation and NGOs ➢ Tendency for public organisations to invest in the old context ➢ Tendency of urban management to rebuild historical areas	➢ Reduced population levels in this cultural, historical area, and low-income, Afghan and rural migrants ➢ Increasing numbers of gangs and rising criminal behaviour due to social and economic problems ➢ Low motivation to invest in private areas due to unclear policies and poor urban management ➢ Reluctant investors due to return period of investment, economical cost and structural obstacles ➢ Rebuilding plans failing to be co-ordinated with facilities ➢ Continuing influx of low-income residents seeking cheap housing ➢ Incoherence of behaviour towards commercialisation

Table 8. 6 Sub-case study one SWOB analysis result in relation to Socio-cultural dimensions.

8.1.6 Key findings regarding Physical form

Macro-level findings

Analysis of the formation of Shiraz historic fabric in Chapter 5 section 5.6 identifies that religion, politics, economics and socio-culture all play a role in the physical formation of

the historic core. The analysis also identified that spatial continuity, topography and public social spaces influence the physical form. Furthermore, Pre-Islamic, Islamic and modern principles have influenced the dimensions of the urban elements and space, on a street scale, block scale and plot scale. The fabric traditionally formed organically and was built with local materials and influenced by climatic considerations, as mentioned in section 5.6.5. The outcome of analysis of Islamic culture showed that security and privacy are also important factors which have influenced the formation of the historic core.

According to chapter 5, section 5.6.3, trade routes and street networks were major influences in the formation of the historic core. However, the current street network in the historic core is inadequate for modern life and the public transport system does not serve the requirements of the residents. Furthermore, many passages have been altered or no longer exist, resulting in poor connectivity between neighbourhoods and services.

Micro-level findings

Chapter 6 section 6.6 identified that Lab-Abb neighbourhood was formed with an organic structure and each passage has its own dimensions. The winding nature of passages serves to improve security and privacy. Climatic factors also influence the physical form – alleys are built to provide shade. Interventions, such as the widening of alleys, have taken place in Lab-Abb with the help of local cooperatives and some residents with equity have contributed to local development projects.

Chapter 7 section 7.6 identified that in Bazaar-Morgh and Eshagh-Baigh neighbourhood the street and passage network formed organically, which also serves to improve security and privacy. Figure 7.11 shows that the alleys are built with climatic considerations, providing shade from the sun with their narrow design.

Findings which apply to both sub-case studies are as follows:

Micro-level physical form findings of the research
Extensive physical exhaustion of the historical context of studied neighbourhoods and inadequacy of plans and motivation of the desire for physical modernisation mean that this part of the historic core would be particularly vulnerable in the case of an earthquake.
Low quality of many buildings in historical context and exhaustion due to lack of standards and practices of assessments, protection and maintenance of buildings.
Weakening of buildings adjoining other buildings which have been demolished or are dilapidated.
Unplanned conversion of a large number of houses to support commercial activities and act as warehouses.
Severe weakness of accessibility and consequently, the possibility of giving service to the centre of neighbourhoods and lack of parking at neighbourhood level (Section 7.7.2)
Previous interventions were poorly planned and their legacy causes severe physical problems (Bain-Al-Haramain, Zand underpass, etc.)
Old houses and monuments that have been overlooked by previous interventions and inappropriate use of created spaces.
Failure to introduce activities compatible with the physical structure of neighbourhoods, and lack of proper plans for the growth of these services.
Location of many services confined to the outer urban areas which do not reach in to the centre of the fabric.
Failure to understand the services needed by users in the historic fabric
Fundamental weakness in the infrastructure and infrastructure services
Functional isolation of historical and cultural texture due to its closed functional system and lack of optimal economic relations with surrounding areas and of course, the recession in the area
Extreme poverty of green space as resting and breathing space in the studied neighbourhoods
Existence of organic passages network within the historical context and narrow water channels and ditches in the studied neighbourhoods
Fine-grained passages whose arrangement is unsuitable for combining plots in order to rehabilitate the fabric
Severe weakness from limited access and consequently impossibility of providing services to the centre of the historic core and lack of parking in the historic fabric.

Table 8. 7 Micro-level physical form findings.

Information collected during the fieldwork study and analysis of those data by SWOB analysis, identified the strength, weaknesses, opportunities and treats in relation to physical form within both sub-case studies. The summary of the relevant analysis with physical form are as follows (Table, 8.8).

Field	Strengths	Weaknesses	Opportunities	Threats
Physical Structure	➢ Existence of historical monuments and monumental buildings and existence of several historic spaces in this area. ➢ Existence of architectural, artistic and historical urban spaces in this neighbourhood. ➢ Existence of empty buildings (abandoned and ruined places which can be used for compensating and cover the lack of urban services)	➢ Existence or urban structural exhaustion in this neighbourhood. Frailty and ephemerality of historical buildings. ➢ Existence of urban textures ill-equipped against natural disasters. ➢ Lack of public green spaces. ➢ Lack of educational and sports buildings for local residents. ➢ Unwillingness of investors to invest in re-building and renewing historical buildings.	➢ Extension of commercial and service activities ➢ The existing central capacity of the region ➢ Looking after urban management and public and governmental organisations and rebuilding ➢ Motivating citizens to rebuild old buildings ➢ Convincing people of Shiraz to look after the historical region. ➢ Tourism capacities and talents in the region and the possibility of using the existing religious core of Shiraz and maintaining the buildings and shrines in the region. ➢ The possibility of using the shrine centre to strengthen steel structures and provide needs of regional-urban districts.	➢ Looking after more commercial contexts without providing infrastructure and support services. ➢ Continuing severe physical fatigue and non-strength of building against natural events. ➢ Violation of regulations and previously approved plans. ➢ Continuing spontaneous development and disorder in structures, especially in the main corner of the historic region. ➢ Continuing sporadic movements and non-structural, threading complex of the region. ➢ Non-targeted and non-conforming destruction of the structural theme of the region. ➢ Existing endowment properties, problems in rebuilding and severe delays in rebuilding. ➢ Continuing to protect the condition of the buildings and choosing the museum style to protect the context; preventing revolution of infrastructure to actively protect and renew the context.

Table 8. 8 Sub-case studies SWOB analysis result in relation to physical dimension.

8.2 Recommendations

Having collected and analysed data at macro level and micro level, according to the integrated conceptual framework, the research will recommend the approach, methods and techniques needed for rehabilitation of Shiraz historic fabric based on an urban design method. In this regard, general recommendations will be presented before more detailed recommendations based on each key aspect of rehabilitation.

8.2.1 General recommendations

According to the above explanation, this research presents four methods of the rehabilitation approaches with associated techniques, which are based on Table I.1 of this research (Table 8.9).

Methods	Related Techniques
Revitalisation of historical, cultural and social identity of the historical city of Shiraz.	Protection of urban qualities with important applications in the areas of cultural and historic fabric, making these areas healthy as appropriate environments consistent with Iranian-Islamic models
Regeneration through improving the performance of and expanding key city activities.	Improving basic human and social facilities in residential environments by providing shelter (with related services), social interaction and leisure functions, increase availability of public spaces for community activities and provide community centres
	Increase livelihood potential of residents by creating job opportunities, improving literacy of residents, creating policies to provide social funds
	While keeping the organic structure as intact as possible, increase accessibility of neighbourhoods to urban services such as education and health
Revitalisation through strengthening urban management system based on maximum participation of public institutions.	Sustain the development of public participation (through organisations and participation of grassroots activists)
	Organising sustainable revenue sources for urban management (strengthening of resources for creating and deploying sustainable the development of in line with its long-term resources
Renewal through creation of special balance of Shiraz historical texture and its surroundings in order to improve the efficiency of resources and environmental conditions.	Protection of the qualities of cultural and historical elements of old texture and their rehabilitation consistent with the needs of contemporary life.
	Achieving a developed system of commercial and services centres for environmental rehabilitation
	Spatial organisation of the old neighbourhoods in order to play important functional, administrative, business and service roles
	Creation of capacity to attract and deploy appropriate services in the field of tourism
	Increasing the efficiency and effectiveness of the role and function of green spaces and open spaces in historic neighbourhoods with an emphasis on social function in the body of historical context of Shiraz
	Increasing the city's resilience towards natural disasters
	Using public transport system instead of private transport

Table 8. 9 General recommendations for the rehabilitation of Shiraz.

8.2.2 Recommendations regarding Religion

Macro-Level recommendations to be implemented by governmental organisations

Shiraz historical and cultural area, due to its antiquity, is also the location of religious and historical spaces and has long been regarded as a community centre visited by many internal and external pilgrims and tourists. In other words, the close proximity of Ahmad-Ebn-Musa shrine, Shah-Cheragh, Seyed-Alaeddin-Hussein, Jame Atiq and Shohadfa mosques in a relatively central position of the fabric, caused the formation of religious cultural centres. This group, over recent years, suffered physical and functional fragmentation and its performance is hampered by the lack of complementary spaces. Therefore, this study proposes the connection between existing centres and the enhancement of current processes by strengthening the buildings and services associated with the mosque. It should be noted that these categories are formed in interaction with the market and the axis of urban public spaces between the shrines. It also attracts pilgrims and tourists to the area and promotes economic activities. Proposed land-uses in relation to this subject include construction and development of the following buildings and spaces connected to and run by the mosques:

1) Open green spaces and leisure time spaces

2) Educational services

3) Health services

4) Local business services

5) Sport services

This research also proposes that the value of the functions of historic monuments and cultural and religious buildings in Shiraz historic texture are recorded, analysed and assessed as follows:

Propositions for the assessment and recording of historical monuments
Improve capacity for cultural and religious functions and services tailored to the special role of historical context (especially trade, tourism and urban services)
Restructure and restore access to historical monuments and religious buildings
Improve use of the southeast axes of the historic core for optimum management of transport and traffic in the religious, commercial and cultural centre of the historic core
Redefine services associated with mosques by expanding them to provide training for local residents in skills that would increase their employability and literacy
Expand and encourage greater use of pedestrian and public transport movements in the city, particularly in relation to religious and historical complexes
Enable open parking close to historic, religious and touristic amenities, in order to facilitate access to them

Table 8. 10 Propositions for the assessment and recording of historical monuments.

Micro-level recommendations

This research identified that for rehabilitation of sub-case studies 1 and 2, it is necessary to pay attention to several important points. The organisations responsible for these actions is presented in brackets after each recommendation, which are as follows:

Micro-level recommendations regarding religion
Attract more tourists by presenting religious buildings as a place for pilgrimage or as cultural and architectural attractions (Cultural Heritage, Handicrafts and Tourism Organisation)
Create a structural relationship between endowment and charity affairs organisation controlled by religious parties with other municipalities for designing a new development plan (City Council)
Use highly-regarded religious building for organising social activities within historic neighbourhoods and design a new activity plan for these centres based on the residents' needs (City Council and Cultural Heritage, Handicrafts and Tourism Organisation)
Encourage NGOs to take a part in social activities in order to connect people and different parts of government bodies (Cultural Heritage, Handicrafts and Tourism Organisation)

Table 8. 11 Micro-level recommendations regarding religion.

8.2.3 Recommendations regarding Politics

8.2.3.1 Macro-Level recommendations to be implemented by governmental organisations

As mentioned in Chapter 5 section 5.2, the historic core is one of eight districts, each of which has their own municipality. The historic core is known as District 8. The districts are further sub-divided into zones, and the historic core has eleven zones (see Figures 5.8 5.9 and 5.43). The following propositions, with regard to the districts and zones are presented as follows.

Propositions relating to the change of district border

Due to contextual and structural similarities between Zone 6 of District 2 and the historic core, as well as religious, economic and social characteristics of the inhabitants of the neighbourhoods and close ties between them due to its proximity to the historical context, this research proposes the integration of this zone into the historic context. It should be noted that the number of monuments declared by Cultural Heritage Organisation within the limits of the area is significant (Cultural Heritage Organisation report, 2014).

Therefore, in the event of the incorporation of this zone of District 2 into the cultural and historical area of the city, not only will this area come out of Zone 2, but it will also fit into the new spatial-physical structure, which will lead to an increase in the area of the historic core, as well as increased interaction of residents with the historic context. Therefore, it is possible to increase the income of residents, by training them in renovation skills and consequently the continuation of economic improvement in Shiraz historic fabric. This could turn into an active urban area with a specific activity load. The advantages of the realisation of these major changes include:

- More logical construction and context of the district, homogeneity, consistency and greater local integration in terms of physical, economic and social issues
- Increased engagement with neighbouring areas to promote local integration
- Increased ease of decision-making in the area of physical development context
- Possibility of increasing income and economic continuity of the border of this area

Integration of the historic zone with modern urban city centre in Shiraz

To strengthen the administrative and management structure of Shiraz city and its historic core, as well as the optimal division of work, integration of District 8 with the modern city centre (in District 1) in Shiraz is proposed, changing it to a special historic district of the city centre (Figure 8.3). The benefits of this proposition are as follows:

- Increasing interaction and exchange with neighbouring zones and benefitting from the outcomes resulting from this interaction
- Take advantage of increased capabilities and integration management authority of the central body of the district
- Paying special attention to the historic-cultural area and rising management capability combined with appropriate management and administrative structure of the district
- The existence of more control over legal and administrative problems for local development
- The prevention of relative isolation resulting from urban development in recent decades

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Figure 8.3 Proposed integration of zones into the historic core (Source: Shiraz Municipality annotated by Author)

Propositions for organisational-administrative and financial structure of Shiraz historic fabric to deliver rehabilitation

Since the cultural-historic district of Shiraz, requires special attention in reconstruction and repair, it needs its own administrative and management organisation. On the other hand, the survival of the zone requires modernisation and regeneration. Therefore, the empowerment of urban management through institutional reform and improved administrative and financial systems is inevitable.

These structural changes are available not only in organisational forms but also in the management structure, creating new management posts, reforming the system of allocation of duties, optimising and regulating the relationship between councils with mayors, training of mayors and city council members, and using participation mechanisms.

Propositions for strengthening civic participation

Nowadays, public participation is considered one of the key elements of development, especially human development. Thus, participation is a comprehensive tool to improve the level of socio-economic development. Furthermore, human development is also associated with the level of education and understanding of the community's collective. Hence, dynamic civic participation allows people to recognise their potential and can be considered as a tool for rehabilitating urban areas in Shiraz historic fabric. Examples of areas in which participation could take place can be summarised as follows:

- Evaluation of needs and problems
- Decision-making by holding local forums
- Implementation of activities
- Optimisation of facilities
- Maintenance and reconstruction

From the analysis of the questionnaires collected during fieldwork study (Appendix 3), it is evident that for the realisation of public participation there must be appropriate infrastructure. Currently, many factors present obstacles to participation. These factors can be categorised as follows:

Obstacles to participation	
Political obstacles	Centralised planning system
	Lack of participative management
	Resistant attitude of officials towards participation
	Lack of support from corporate institutions
Social and cultural barriers	Low level of education and public awareness
	Social heterogeneity (existence of various ethnic groups or multiple languages)
	Having unsuccessful experience of collaborative projects
	Conservatism and distrust of the people toward government officials
	Lack of institutions to facilitate participation
Financial barriers	Personal ambitions rather than seeking the benefit of the collective interest
	Financial abuse in implementation of some projects
	The absence of mechanisms appropriate to the spending power of the people
	Existence of limiting administrative rules

Table 8. 12 Obstacles to participation.

Therefore, it is necessary to design the structure to encourage local residents to participate in the rehabilitation of historic fabric. Consequently, in the next section this research presents an appropriate participation model to achieve this goal.

Methods for attracting participation in rehabilitation

In order to attract public participation, particularly where there is mistrust of agencies and organisations involved, the following recommendations are proposed:

- Informing people accurately and clearly about the changes that are going to happen within their reach.
- Forming a council consisting of trustees who are liaison between the people and the organisations and agencies that implement the project at the neighbourhood level.

- Accelerate the delivery of services and improve urban and neighbourhood infrastructure to encourage people to renovate, refurbish, preserve and restore historic and cultural buildings and monuments.
- Tax relief for some reconstruction, especially in dilapidated blocks.

The last step that must be achieved in the process of participation is to define and explain the areas of public participation and different actors in the development process of urban plan. It is necessary to determine the needs, prioritise the participation of the people, and to determine the mechanism of attract participation amongst other actions necessary in this area.

Fields of public participation

- Public participation in urban management (of areas, neighbourhoods, etc.)
- Public participation in prioritising the needs of neighbourhoods
- Participation in rehabilitation plans

Consequently, because of the special features of District 8 (historic fabric, presence of valuable buildings, religious centres, etc.), any intervention, whether in the context of development, restoration, protection, etc., so should include participation of residents. In addition, other groups and government agencies can operate in this field cooperatively.

Based on the above explanations it can be stated that public participation in historic area rehabilitation projects in Shiraz can be undertaken in the following areas of rehabilitation:

1) Public participation in upgrading buildings by allocating low-interest loans through banks and providing municipal facilities to encourage residents to earthquake-proof buildings

2) Increase residents' use of public services by improving subsidising public services

3) Attracting NGOs, public participation and local management since managing local affairs in every neighbourhood is the best way to foster social awareness.

4) Allowing historic and religious buildings to be used by community members as well as being tourist attractions which will result in increased funding for community activities

5) Identifying historic and non-historic passages and widening the non-historic passages to improve access to social services, by involving residents in the design process and assessment of passages

6) Providing renovation loans to enable residents to improve the aesthetic qualities of their houses

7) Creation of hospitality services (hotel, guesthouse, etc.) by establishing development law to allow residents to change the use of their properties from residential to commercial, while maintaining the historic characteristics of houses based on the municipality detailed plan.

Propositions regarding the rules and regulations governing the spatial development of the historic fabric

In this part of research, four state structures for Shiraz historic fabric were defined in consultation with the consultant and coordinator of Shiraz Municipality. These structures are: four new urban management systems for redesigning historic centres, zoning of land uses, density, communication networks and zoning (based on height) provided on the basis of physical form analysis presented in previous chapters and SWOB analysis. Propositions are presented based on the above-mentioned efforts needed to reform the system, while the final four templates zone has been proposed.

Structure of neighbourhood centres and axes

One of the goals of this research is to streamline the management levels of the historic core, which, it is proposed should exist at four different levels, as follows:

- Centre for management on a provincial level
- Centre for management on a city-wide level
- Centres for management on a neighbourhood level
- Centres for management of social services

Before locating these centres in Shiraz historic fabric, it should be noted that the historic-cultural area and neighbourhoods serve the surrounding areas. In determining the neighbourhood, it is necessary to devise a new zoning system. Accordingly, the area is divided into 11 planning zones and border areas in accordance with the main thoroughfares in the area. There also needs to be better management of neighbourhoods

within the zones, which should be based on the detailed plan approved by the municipality.

Thus, several urban centres with neighbourhood and urban functions within Shiraz historic context have been identified, such as Shah-Cheragh, Astaneh, Jeme Mosque and Zand intersection. These centres are located in the centre and the outer edge of the cultural-historic zone and only operate locally. Figure 8.4 shows the structure of urban centres at levels of Shiraz cultural historical district.

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Figure 8. 4 Physical structure of Shiraz historic fabric (Source: Shiraz Municipality annotated by Author).

Analysis of the current situation of Shiraz's historic core presented in the first chapters of this research identified that Iranian cities are growing and developing fast. In most cases, these changes are not proportional to each other. Therefore, it is necessary to establish one general master plan for development and rehabilitation, which is comprised of several detailed plans, in accordance with the conditions of various localities, in the historic core. These projects should be approved by the government and presented as rehabilitation law to public and private sectors and the municipality. This legal strategy can stop irrational changes in historical context, which is applied by the arbitrary decisions of city managers.

Having considered the governmental structures, the following propositions are strategies for better organisation of the governmental structures for rehabilitation. Section 5.2 stated that there are five different municipality departments involved in the rehabilitation process. These are:

- The Ministry of Energy (Gas, electricity and water)
- The Ministry of Housing and Roads
- The Ministry of Telecommunications
- The Home Office (Municipality level)
- Cultural Heritage, Handicrafts and Tourism Organisation

According to the structure of the organisations in the rehabilitation process, the set of propositions are introduced as follows:

Macro level political recommendations
The promotion of organisations, institutions and local management structure in order to achieve the desired objectives and strategies
Designing an integrated, powerful management infrastructure for the implementation of policies, plans and executive projects and the development of inter-sectoral institutions, as well as cooperation between organisations involved in local development
Providing conditions for supplying sustainable funding for municipal historic zone, and reducing its dependence on unstable revenues inconsistent with the objectives and strategies of the civil area
Providing conditions for strengthening the role of public participation and strengthening public institutions, especially the private sector in the rehabilitation of Shiraz's historic context
Reviewing the organisational structure of the Historic District Municipality
Reviewing the staffing structure of the municipality with the aim of enhancing the quality of human resources and management
Creating and strengthening effective communication between the municipality of the area with neighbouring areas and other organisations involved in the development of the historical district
Defining the responsibilities of specific municipality departments in the rehabilitation process
Periodic evaluation of the performance of the municipality and its implementation
Providing conditions for the formation of non-governmental organisations (N.G.O) and local communities (C.B.O.S) aimed at encouraging participation in civil activities and rehabilitation initiatives of the context
Empowering different groups of people to participate in the upgrading of their residences and workplaces
Encouraging the formation of development organisations in the private and public sectors based on the requirements of the detailed plan
Redefining organisations by needs of executive projects
Improvement of communication between institutions and organisations involved in the rehabilitation process
Redefining the Civil and Improvement Organisation, and historic district of Shiraz according to recent experience and developments
Redefinition of the central area with the aim of economic and operational sustaining of central and historic districts
Gradual phasing out of dependency of the municipality of the central historic area on revenues from taxes of changing land use and density sell
Strengthening local municipal participation in development activities with economic efficiency in the area
Preparation of conditions to receive credits, foreign and domestic loans and grants to stimulate the development of the area
Establish consistency in development plans and projects to improve the urban quality level in Shiraz historic fabric.
Removal of legislative obstacles, supporting and attracting renovation and reconstruction plans in the area, especially in the centre of the historic core.

Table 8. 13 Macro-level political recommendations.

8.2.3.2 Micro-Level recommendations

At neighbourhood level, the following recommendations regarding policies are proposed with the organisations responsible for these actions.

Recommendation	Organisation responsible
Revise the construction law in order to match the current situation of development and resident's needs	Municipality and City Council
Establish new urban regulations for improving and developing urban block and plots based on the rehabilitation master plan	Municipality and City Council
Establish new policies for connecting the municipality to other organisations.	House of Commons
Design a new management system for improving databases in relation to land information and property values	Municipality, Ministry of Housing and Roads, Ministry of Telecommunications, Ministry of Energy, City Council
Design a new financial system for the municipality in order to be independent from the government funds for running public projects	Ministry of Finance, House of Commons, Municipality
Prioritise rehabilitation projects within historic neighbourhoods, based on development plan established by government and adapt the action plan considering needs of residents in different neighbourhoods	Municipality and City Council

Table 8. 14 Micro-level recommendations regarding policies.

8.2.4 Recommendations regarding Economics

Macro-Level recommendations to be implemented by governmental organisations

According to Chapter 5 section 5.4, the bazaar is the centre of commercial activities in Shiraz. Therefore, economic rehabilitation should focus on improvement of the bazaar by regeneration to reintroduce investment, increase employment and enhance economic activities such as international and national trading. By adapting traditional trades to modern life by introducing new technology for production of goods, automation of trade systems and the use of e-commerce to expand markets, the income of the traders will be increased, branding will be improved, and new investors will be attracted.

Shiraz bazaar is among the oldest of the historic centres and attracts many tourists from all parts of the country and even from abroad, not only for shopping, but also to visit the bazaar as a cultural-historical sight. Thus, due to the exhaustion of old buildings, urban monuments and urban spaces, it is necessary to pay attention to the market and support businesses and economic activities in order to rehabilitate the functions and identity of these urban spaces. In this regard, the following points should be considered:

Propositions for upgrading the bazaar
Strengthening the role and performance in relation to other urban complexes, especially cultural, religious, historical, in order to attract tourists and boost economic activity in the area and use it as the main part of the context and attracting tourists and a bridge between elements and surrounding space.
Upgrading buildings, renewing a sense of historical identity, by taking advantage of indigenous and traditional architectural patterns and the use of appropriate materials
Easing access for pedestrian movement and interaction of physical space as well as reduce the amount of traffic
Creating spaces for leisure, accommodation and catering for tourists to increase local attractiveness
Strengthening support spaces and roadway access to supplies as well as increasing the safety factor of natural and unnatural market risks

Table 8. 15 Propositions for upgrading the bazaar.

Following analysis of Shiraz bazaar in section 5.4.1, several goals for economic rehabilitation can be introduced, which are as follows:

Goals for economic rehabilitation	
Providing conditions for promoting sustainable funding for the historic core through the following techniques and reducing its dependence on unstable revenues.	Establish the mechanism to support NGOs and civic organisations and to guarantee investors' benefits
	Identifying and providing sustainable solutions for financing and credit, and defining mechanisms to increase income of urban management in the historic districts
	Provide appropriate and cheap banking facilities in order to attract more investors
	Develop a historic renovation program to attract investors
	Creating confidence and motivation for investors, the private and public sectors to expand employment in the historic core
	Strengthening existing business cores, equipping them with banking branches, establishing formal commercial agencies nationally and internationally
	Enable business functions in the historic core which are appropriate and in keeping with the history and culture of the fabric
	Injecting income from outside of Shiraz into the historic core to enhance business prosperity
	Strengthen government-sponsored manufacturing workshops located in the bazaar
	Encouraging residents to invest in commercial activities within the historic core
	Establish the mechanism to support NGOs and civic organisations and to guarantee investors' benefits
	Strengthening the market by revamping the service system and equipping it with modern economic systems
Strengthening the function of tourist and tourism centres through the following techniques:	Providing the ground for increasing employment and creating more job opportunities in relation to tourism and pilgrimage
Providing infrastructural services and access to take advantage of the central location and historic area in order to attract and develop activities, especially tourism, cultural and trade-service activities	
Traffic regulation and restriction in some areas of the historic fabric, by increasing capacity of the public transport system, which will improve infrastructure services and buildings in the historic core.	

Table 8. 16 Goals for economic rehabilitation.

Micro-Level recommendations

As well as the above techniques at macro-level, the main recommendation for rehabilitating the economic situation within both sub-case studies is as follows, with the organisation responsible:

Techniques for improving livelihood of residents	Body reponsible
Design new economic projects by using the entrance gates as an important factor in the economy due to its location on a trade route. This research recommends that the gates be used as a place for socio-economic activities, introducing different commercial uses for each gate, establish mixed land-use (commercial and residential) and attract investors to these projects	Municipality, City Council and Cultural Heritage, Handicrafts and Tourism Organisation
Establish new economic policies to improve and expand the existing charitable foundations and support for low-income residents	Municipality and City Council, Banks
Design an area to house several small businesses to attract more customers and to avoid a multiplicity of small businesses which are too small to be efficient and mismatched to the characteristics of the historic core	City Council and Cultural Heritage, Handicrafts and Tourism Organisation
Improve accommodation of employees in the historic fabric and appropriate integration of work and life in the area	City Council, Private sector, local residents
Make a new infrastructure for welfare housing in the area, particularly in the heart of historic neighbourhoods, based on their potential in socio-economic structure	Banks, City Council and Municipality

Table 8. 17 Techniques for improving livelihood of residents.

8.2.5 Recommendations regarding Socio-culture

Macro-Level recommendations to be implemented by governmental organisations

The findings of chapter 5 lead to the presentation of important practical recommendations for the rehabilitation of the socio-economic structure in Shiraz historic fabric. Those relevant to socio-culture are presented as follows.

Macro-level socio-cultural recommendations	
To attain even distribution of population and social classes of the inhabitants of the historic core by:	Expanding housing capacity around the periphery of the historic fabric by increasing the number of storeys to three or four around the edge and gradually decrease this as one moves towards the centre (Appendix 7)
	Improving the quality of life in the historic district, and providing conditions for attraction of native populations, and changes in demographics and social structure of the area
	Improving infrastructure services in the area
	Provide conditions for comfortable, safe and attractive residence in the area
	Preparation of conditions for accommodation of special groups: artists, intellectuals, professionals, etc. in the historical district
	Improving access to and communication within the neighbourhood
To create a secure social and private areas as the main focus of promoting residence and public activities in the historic fabric by:	Providing conditions to foster the sense of belonging to the area and encourage citizens to increase informal social monitoring of urban projects
	Creating and strengthening formal institutions to implement security and surveillance measures in the historic context
	Designing physical environment to discourage and minimise crime by redesigning neighbourhoods to increase visibility, by increasing police presence in neighbourhoods and by creating secure residential compounds

Table 8. 18 Macro-level socio-cultural recommendations.

Micro-Level recommendations

At micro level, the following recommendations are proposed, with the organisation to implement them given in brackets.

Aim	Technique	Organisation responsible
To facilitate the development and promotion of civil and social life, and develop a sense of citizenship in different areas of Shiraz historic context	Expanding training programmes (formal and informal), learning programmes, urban culture and citizenship	Ministry of Housing and Roads, Municipality and City Council
	Increasing the responsibilities of public institutions to maintain social order in their neighbourhoods, and gradually transferring other responsibilities to other organisations	Cultural Heritage, Handicrafts and Tourism Organisation, Municipality and City Council
	Identification of crime hotspots and adjusting police operations accordingly	Police department, City Council, Municipality, House of Commons
	Improving accessibility to all parts of neighbourhoods and increasing monitoring mechanisms, especially in the centre of the historic fabric	City Council, Municipality
	Promotion of social and human capital in the historic fabric	Ministry of Economy and Finance, Cultural Heritage, Handicrafts and Tourism Organisation, City Council
Organising and directing functional community activities, and inhibiting the growth of unplanned community and cultural activities in the historic fabric	Providing conditions for attracting public and private sector development in Shiraz historic core	City Council and Municipality
	Planning, guiding and controlling infrastructure improvement activities instead of resistance to development, especially in the ring around Shiraz historic core and the edge of historic neighbourhoods	Ministry of Housing and Roads, Municipality, City Council
	Encouraging activities and functions appropriate for the historic core, and gradual migration of activities incompatible with the historic and cultural area	Cultural Heritage, Handicrafts and Tourism Organisation, Municipality and City Council

Table 8. 19 Micro-level socio-cultural recommendations.

8.2.6 Recommendations regarding Physical form

Macro-Level recommendations to be implemented by governmental organisations

According to Chapter 5, section 5.7.6, the components that played the important role in rehabilitation of Shiraz historic core are: trade routes, street networks; passages that no longer exist, but previously a crucial role in shaping the historic core; urban organic pattern; blocks, plots, open spaces and houses; public transportation system, and urban design qualities.

Therefore, the following recommendations target each of these components to improve the functionality and quality of the factors that shaped the historic fabric, while respecting the role of Islamic and pre-Islamic culture and using policies to improve tourism and to help improve the livelihood of the residents.

Trade Routes	Street Network	Blocks, open spaces, plots and buildings	
Re-establishing the pre-Islamic trade routes that connected Shiraz historic core to the surrounding cities which were part of the Silk Road, by establishing a variety of businesses that work on a local and national level. These will be mainly located in the gateways of Shiraz historic core.	Increase connectivity from the historic core to the rest of the city, to prevent isolation of residents and to play a role in the local system with its own specific functions by using reintegration techniques.	Restoration, repair and reintegration of main blocks of the historic fabric, while considering that the surrounding urban fabric has changed; use of traditional and Islamic motifs, such as courtyards, for restructuring the blocks.	Adaptive re-use of historical valuable monuments, such as converting old houses into libraries, museums and workshops, with goal of increasing productivity and residents' livelihood, to achieve the objectives of the development plan.
Remodelling the inner street network that previously connected the gateways with each other via the historic core, by revitalising the old local bazaars, which have Islamic characteristics and the local shops located on those axes through preservation and remodelling those buildings and reintegrating them with the surrounding areas.	Increasing interaction with neighbouring city areas and the city as a whole by strengthening the role of the gateways as important nodes to connect internal and external streets in the historic fabric, using reintegration, consolidation and restatement techniques.	Enhancing cultural and historic activities and functions of district, such as religious festivals and fairs, considering the objectives of the macro development plan of Shiraz.	Adaptive re-use of historical valuable monuments, such as converting old houses into libraries, museums and workshops, with goal of increasing productivity and residents' livelihood, to achieve the objectives of the development plan.
Establishing several nodes for socio-economic activities, such as shopping and social interaction, in the streets that serve the old local bazaars and shops, by remodelling them to retain their original characteristics and function. These nodes can also serve as loading and unloading bays for the bazaars and shops.	Allowing pedestrians to stroll around historic buildings and monuments, by repairing passageways in line with organic patterns, while maintaining the width required by Islamic law, equipping the passageways with suitable urban furniture and security measures so that the passages can be used day and night.	Modernisation and reconstruction in the heart of the historic core while maintaining the pre-Islamic and Islamic cultural characteristics and materials of the historic fabric.	Strengthening historic fabric to withstand natural disasters.
Improvement of infrastructure facilities and urban services in historic fabric to fulfil necessary functions for development of quality level of urban spaces by using the renewal method and applying the adaptive-reuse technique.		Development of open, green spaces in the heart of historic neighbourhoods, by using the pre-Islamic pattern of Persian gardens, in order to provide public outdoor recreation spaces.	Remodelling and equipping of service-cultural buildings and spaces in the historic context, based on Islamic motifs and patterns.
Redefining the main urban structure of Shiraz historic-cultural context, from various periods of history, by reconstructing the building and monuments that do not currently exist to restore its cultural identity, structured and coordinated in line with the development plan.		Strengthen and complement projects related to rehabilitation of the quality of urban spaces in the historic fabric, by understanding the strengths, weaknesses, opportunities and barriers to socio-cultural and economic issues and involve relevant organisations to propose solutions for rectifying the problems.	Restoration of historic and religious monuments in the historic context.
		Analysis and recording of historic monuments and plots.	Record, analyse and classify the condition of historic houses, monuments and buildings in order to strengthen the role of tourism. This includes pilgrimages, visitors for Persian New Year, national and international tourism. Improve residents' livelihood, by providing tourist-related jobs such as tour guides, curators and local craftsmanship.
		Following the classification of buildings, respond to local needs, such as reconstruction and repair.	

Table 8. 20 Macro-level physical form recommendations.

Urban Design Qualities

Regarding urban design qualities, the following recommendations are proposed:

Permeability And traffic	Legibility	Variety	Resilience
Providing access to the centre of historic neighbourhoods in the historic district, by restructuring streets and alleys, repairing road surfaces and equipping streets with urban furniture, to enable repair, restoration and development of residential areas and public activities in the city	Promote buildings and monuments of cultural value to be recognised as tourist attractions and objects of local pride	Through participation of local residents, revitalise each neighbourhood so that they serve their own individual requirements and display individual characteristics	Regeneration of Shiraz's main historic centres with the goal of improving residents' livelihood and maintaining their activities, by providing training, health services and community activities
Improving pedestrian movement in the historic fabric, to improve physical capital, by designing and clearly marking pedestrian-only routes and increasing the required space for bicycles and motorcycles in the transportation systems.	Creating tourist information boards mapping and listing important cultural monuments to make the area more legible	Protection and reintroduction of trees in the streets and open spaces	Urban regeneration by the development and promotion of tourism and equipment of tourist infrastructure in the area with the goal of attracting internal and external tourists
Designing and strengthening emergency and public transport systems by using new means of transportation	Providing a legible structure of green space for tourism and recreation in the historic core	Restatement of open spaces to be used by different community groups	Revitalisation of the historic-cultural district by taking advantage of its unique characteristics in order to realise the vision and overall (macro) goals of strategic-structural plans in Shiraz
Removing parking spaces along the main axes of the historic core; and development of parking lots		Through integration of adjoining areas of districts 1 and 3 (Figure 8.3) to the north of the historic district, the riverbank would become part of the historic district and could be used as a tourist attraction and recreation space	Remodelling the areas with least access to emergency services, meeting the needs of residential neighbourhoods, and places for work and employment
Creating pedestrian-only tourist and pilgrimage routes, by connecting historic buildings and monuments, to separate tourist and non-tourist traffic			Creation of a fire station and emergency department and delivery of urban services that match the needs of each neighbourhood; to design several urban service centres in different locations within Shiraz's historic fabric
Creation of a second metro line to serve the historic fabric and improve the accessibility to the historic core for pilgrims and tourists			Traffic-reducing measures to reduce pollution in the historic core, by redesigning the traffic system and introducing a congestion zone

Table 8. 21 Recommendations regarding urban design qualities.

This research therefore, proposes the following long-term projects for rehabilitation of Shiraz historic fabric at Macro-scale, presented in Table 8.22, with the priority of each project graded as A, B or C, (where A is the highest) as follows:

Long term projects in Macro-scale

Project Number	Grade of priority	Project Name	Scale and Methods/techniques	Importance and necessity of the project's implementation	Participants in the project	Interest groups affected by the project	Effects of the project	Source (s) of funding
1	B	Upgrading and strengthening of historic fabric	**Macro scale** Protection, consolidation, repair, reconstruction and conversion	Increasing the strength of buildings against events	Local residents Tourism and Cultural Heritage Organisation	Local residents Tourism and Cultural Heritage Organisation	Perpetuating the life of historic fabric Expanding tourism activities	Tourism and Cultural Heritage Organisation Local residents
2	A	Upgrading the main passageways of historic fabric	**Macro scale** Repair, protection, preservation and reconstruction	Increasing the strength of the context Expanding the scope of activities of the passageways	Traders and merchants Tourism and Cultural Heritage Organization	Unions Tourism and Cultural Heritage Organization	Promoting business prosperity Creating job opportunities Attracting tourists	Unions and traders Tourism and Cultural Heritage Organisation Municipality
3	B	Provision of escape and refuge areas in the heart of the historic fabric (multi-purpose spaces)	**Macro scale** Remodelling, reintegration, restoration and consolidation	Increasing the safety of residents and passers-by in the event of danger	Government Organizations Private sector	Local residents Tourists	Providing various shelters in different parts of the region	Government Organisations Municipality Private sector
4	A	Making the unsafe spots in historical fabric clean and secure	**Macro scale** Conversion, recuperation and protection	Increasing the coefficient of public security in the region Reducing social problems in the region	Headquarters for Combating Drugs Police force Municipality Residents of context	Local residents Tourists Pilgrims	Creating a sense of confidence for inhabitants Increasing willingness of the tourists and pilgrims to visit the historic fabric	Municipality Headquarters for Combating Drugs
5	C	Revitalise the living conditions of immigrants in historic fabric	**Macro scale** Recuperation, protection, restatement, reintegration	Population stabilisation in the historic fabric Avoiding scattering of the physical contexts	Local residents Municipality Housing and Urban Development Organisation City Council	Local residents Non-native groups	Zoning of social strata accommodation	Municipality City Council
6	A	Re-introduction of law enforcement network of old neighbourhoods	**Macro scale** Consolidation, recuperation, remodelling	Increasing social security of the region Adaptive reuse of old houses as police stations	Police force Local residents	Local residents Traders and merchants	Increasing people's satisfaction Creating a sense of confidence	Police department
7	A	Introducing optimal solutions for disposal of urban waste in the neighbourhoods	**Macro scale** Remodelling, repair, restructuring	Identifying appropriate methods of waste disposal Reducing environmental pollution	Universities and research centres Municipality Recycling Organisation	Local residents Municipality Recycling Organisation	Increasing the environmental quality	Recycling Organisation Municipality

Table 8. 22 Long term project recommendations for rehabilitation of Shiraz historic fabric at Macro scale.

Micro-Level recommendations

Using the findings of Chapters 6 and 7, this section proposes recommendations in relation to the rehabilitation of Shiraz historic fabric at neighbourhood scale. In this regard, the recommendations are presented as projects which target buildings, monuments, plots, blocks and open spaces by explaining the project identity, the importance and necessity of the project's implementation, participants in the project, interest groups affected by the project, effects of the project and sources of funding. Tables 8.23, 8.24 and 8.25 present the project recommendations for rehabilitation of the neighbourhoods of Shiraz historic fabric which are as long-term, medium-term and short-term, with the priority of each project graded as A, B or C, with A having the highest priority. The neighbourhood numbers referred to in the table relate to the numbers shown in Figure 8.5 below.

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Figure 8. 5 The neighbourhood zones of Shiraz historic fabric; (Source: Shiraz Municipality).

Long term projects in Micro-scale

Project Number	Grade of priority	Project Name	Area Method/Technique	Importance and necessity of the project's implementation	Participants in the project	Interest groups affected by the project	Effects of the project	Source (s) of funding
1	A	Restoration of historic valuable houses (based on priorities of the Department of Cultural Heritage and Tourism)	**Micro scale** Neighbourhoods 2, 6, 7, 9, 10,11 Restoration and reconstruction of the buildings	Maintaining continuity of residence in the historic context Prevention of migration	Cultural Heritage Organisation Government agencies Municipality	Residents of the neighbourhood Tourists Shiraz citizens	Boosting social activities Encourage old residents to Return to historic context	Cultural Heritage Organisation Municipality Ministry of housing and roads
2	A	Creation and development of urban infrastructure in the context (surface irrigation and sewage disposal systems, solid waste disposal, gas and telecommunications)	**Micro scale** Neighbourhoods 2, 4, 5, 6, 7,11 Renewal, repair and restructuring	Increasing environmental quality Sanitary disposal of waste and prevention of disease outbreaks in the region Regional infrastructure provision	Municipality of district Water and Wastewater Company Shiraz Municipality Telecommunication and gas companies	Residents of the region Tourists	Increasing Environmental Compliance and attachment of the inhabitants to live in the historic fabric Increasing general satisfaction	Inhabitants of context Municipality Water and Wastewater Company Gas companies Telecommunication company
3	B	Organising transportation, traffic, and communication in the historic fabric (modern system of public transport, parking systems and improving the traffic moving in the historic core)	**Micro scale** Neighbourhoods 5, 7, 8, 10, 11 Conservation and restructuring in the historic core	Increased ease of access into the tissue Greater number of options of transportation	Urban Railway Company (Metro) Bus Company Taxi Company Municipality	Local residents Inhabitants of neighbouring regions Tourists	Enhanced interaction with neighbouring areas satisfaction of inhabitants of historic core	Transportation agencies Relevant organisations Municipality
4	B	Supply of urban services in historic fabric (health care, education, sports and recreation, etc.)	**Micro scale** Neighbourhoods 5, 7, 8, 9, 10, 11 Increasing employment and enhancing quality of life	Supply of services needed by the people	Private sector Resident participation Relevant organisations (Education - Physical Education)	Inhabitants of historic fabric Private sector Relevant organisations	Increasing public attachment Increasing people satisfaction	Relevant organisations Private sector Municipality
5	C	The development of a network of green spaces	**Micro scale** Neighbourhoods 2, 7, 8, 9 & 10 Enhancing quality of life	Providing green space required for residents Expanding green space and increasing environmental quality	Municipality Endowment and Charity Affairs Organisation Cultural Heritage Organisation	Residents of historic fabric Tourists and pilgrims	Providing leisure activities for families Taking advantage of healthy recreation	Department of Parks and Green Spaces Private sector
6	B	Development of a suitable model of population composition in the neighbourhoods	**Micro scale** Neighbourhoods 5, 7, 8, 9, 10, 11 Enhancing Quality of Life Protection	Prevention of overcrowding in the historic neighbourhoods	Municipality Residents of the historic fabric Universities	Local residents Municipality	Appropriate levels of population density in the historic fabric	Tourism and Cultural Heritage Organisation Municipality
7	A	Introducing improvement, development and modernisation strategies of infrastructural installations to neighbourhoods	**Micro scale** Neighbourhoods 7, 8, 9, 10, 11 Remodelling, restatement, consolidation and repair	Identifying and taking advantage of strategies for improvement Selecting appropriate methods to improve infrastructural installations	Tavanir Company Telecommunication Company Water and Wastewater Company Gas company	Local residents Relevant organizations Private sector	Accelerating the provision of infrastructure facilities Reducing the cost of services	Government organisations Residents of the neighbourhoods

Table 8. 23 Long term rojects recommendations for rehabilitation of the neighbourhoods in Shiraz historic fabric.

Medium term projects in Micro-scale

Project Number	Grade of priority	Project Name	Area Method/Technique	Importance and necessity of the project's implementation	Participants in the project	Interest groups affected by the project	Effects of the project	Source (s) of funding
1	A	Repairing and restoration of valuable monuments in the historic context (based on priorities of the Department of Cultural Heritage)	**Micro scale** Neighbourhoods 1, 2, 3, 7 Restoration and repair of the buildings	Preparing the ground to attract tourism to the historic fabric Preventing the destruction of valuable contexts	Building owners Tourism and Cultural Heritage Organisation Municipality	Local residents Cultural Heritage Organisation Owners of the buildings	Increasing vitality in the context Enhancing environmental quality	Cultural Heritage Organisation Municipality Owners of the buildings
2	A	Organising transportation, traffic, and communication in the historic fabric (modern system of public transport, parking systems and improving the traffic moving in the historic core)	**Micro scale** Neighbourhoods 5, 7, 8, 10, 11 Conservation and restructuring in the historic core	Increased ease of access into the tissue Greater number of options of transportation	Urban Railway Company (Metro) Bus Company Taxi Company Municipality	Local residents Inhabitants of neighbouring regions Tourists	Enhanced interaction with neighbouring areas satisfaction of inhabitants of historic core	Transportation agencies Relevant organisations Municipality
3	C	Creation of appropriate hotels and reception halls in the historic fabric	**Micro scale** Neighbourhoods 5, 6, 7, 9, 10, 11 Reintroducing investment Increasing employment	Promotion of tourism activities Increasing the duration of tourists staying in the historic fabric	Government organisations Private sector Tourism and Cultural Heritage Organisation Municipality	Investors Residents of of historic fabric Authorized organisations	Attract tourists and provide foreign exchange for the country. Promoting economic prosperity in the region and the city Job creation	Private sector Government organisations Foreign investors
4	C	Merging of old homes and historic buildings and convert them into tourist facilities	**Micro scale** Neighbourhoods 7, 8, 9, 10, 11 Adaptive reuse	Preservation of Monuments and historical buildings Improvement and renovation of historic buildings	Tourism and Cultural Heritage Organisation Building owners	Building owners Cultural Heritage Organisation	Development of tourism activities in the historic fabric Promoting social activities	Tourism and Cultural Heritage Organisation
5	A	Development of participation model for the rehabilitation of old Shiraz	**Micro scale** Neighbourhoods 5, 8, 9, 10, 11 Conservation, repair and enhancing quality of life	Understanding the mechanisms of public participation Taking advantage of people's participation in restoration historical context	Local residents Tourism and Cultural Heritage Organisation Municipality	Municipality Cultural Heritage Organisation People	Increasing public participation in development of historic fabric Increasing satisfaction Providing needed facilities and resources	Municipality Tourism and Cultural Heritage Organisation
6	B	Introducing models and strategies for tourism development in neighbourhoods	**Micro scale** Neighbourhoods 3, 4, 8, 9, 10, 11, 12 Conservation, renovation, reconstruction, enhancing quality of life	Understanding the mechanisms of attracting tourism Promotion of tourist activities	Tourism and Cultural Heritage Organisation Department of Culture and Islamic Guidance	Local residents Tourism and Cultural Heritage Organisation Department of Culture and Islamic Guidance	Provision of foreign exchanges for the country and prosperity in the region Job creation	Tourism and Cultural Heritage Organisation Municipality
7	A	Introducing investment projects and mechanisms for neighbourhoods	**Micro scale** Neighbourhoods 3, 4, 5, 8, 9, 12 Reintroducing investment	Achieving an accurate understanding of appropriate mechanisms of investment Taking advantage of the participation of investors	Tourism and Cultural Heritage Organisation Municipality Banks	Private sector Municipality Banks	Promoting investment in the historic fabric Spatial-physical development in the historic fabric	Private sector Municipality Banks
8	A	Introducing strategies to revitalise traditional activities and functions of neighbourhoods	**Micro scale** Neighbourhoods 3, 5, 7, 9, 10, 11 Enhancing quality of life	Revitalisation of traditional activities and functions of the context	Trade unions Universities and research centres	Trade unions Municipality Tourism and Cultural Heritage Organisation	Prosperity of traditional activities and handicrafts Job creation Attracting tourism	Trade unions Municipality Tourism and Cultural Heritage Organisation
9	B	Sample designing and implementation of elements of giving identity to the neighbourhood	**Micro scale** Neighbourhoods 4, 5, 6, 7, 8, 9, 11, 12 Remodelling, restatement, recuperation and protection	Revival of the neighbourhood system	Residents Tradespeople Municipality	Residents of the neighbourhood	Increasing the sense of attachment and belonging Expanding neighbourhood activities	Residents of the neighbourhood Municipality

Table 8. 24 Medium term project recommendations for rehabilitation of the neighbourhoods in Shiraz historic fabric.

Short term projects in Micro-scale

Project Number	Grade of priority	Project Name	Area Method/Technique	Importance and necessity of the project's implementation	Participants in the project	Interest groups affected by the project	Effects of the project	Source (s) of funding
1	B	Rehabilitation of religious centres of the context (Jame-Atiq Mosque-Shohada Mosque)	**Micro scale** Neighbourhood 8 Protection and reconstruction of the buildings	-Preventing from their destruction as valuable artefacts -Maintaining them as cultural and historical works	Endowment and Charity Affairs Tourism and Cultural Heritage Organisation Mosques Affairs Organization	Local residents Cultural Heritage Organisation Owners of the buildings	Increasing vitality in the context Enhancing environmental quality	Cultural Heritage Organisation Municipality Owners of the buildings
2	A	Introducing community activities appropriate for neighbourhoods	**Micro scale** Neighbourhoods 4, 5, 7, 9, 10, 11, 12 Enhancing quality of life, reintroducing investment	Achieving an accurate understanding of the performance and activities for the neighbourhoods	Municipality Universities Consulting Engineers	Tourism and Cultural Heritage Organisation	Establishment of appropriate activities Prevention of anti-social activities	Tourism and Cultural Heritage Organisation
3	B	Introducing new transport systems appropriate for neighbourhoods	**Micro scale** Neighbourhoods 1, 2, 3, 7, 8, 10, 11 Remodelling and restatement	Facilitating access into the neighbourhoods Increasing the pedestrian safety along with the moving vehicle Enhancing interaction with neighbouring areas	Municipality Transportation Organisation and Terminals Taxi Service Centre Bus service center Urban Railway Company (Metro)	Local residents Tourists Residents of neighbouring areas	Providing the possibility of quick access to the desired destination Increasing the transportation vehicles and possibility of choosing the vehicle	Relevant organisations Private sector Municipality
4	A	Reconstruction of some centres of historic neighbourhoods	**Micro scale** Neighbourhoods 3, 4, 5, 6, 7, 8, 9, 11, 12 Renovation	Recognition and restoration of neighbourhood system	Local residents Housing and Urban Development Organisation Municipality	Local residents Tourism and Cultural Heritage Organisation Municipality	Preventing migration from the region Attracting The crowd to the region Increasing the attachment to the place	Local residents Private Sector Tourism and Cultural Heritage Organisation Municipality

Table 8. 25 Short term project recommendations for rehabilitation of the neighbourhoods in Shiraz historic fabric.

Conclusion

In the introduction of this chapter, three key questions were posed:

What will be the best urban design approach for rehabilitation of Shiraz historic fabric?

How can a rehabilitation approach in Shiraz be applied to other Iranian historic cities?

The answers to these questions are as follows:

In order to answer the first question, the integrated conceptual framework identified that urban design has four categories: quality of life, quality of built form, quality of public realm, such as public open spaces, and quality of urban environment. This research also identified the key qualities of urban design in relation to physical form, which are: permeability, variety, legibility and resilience. A rehabilitation strategy must, therefore, ensure the permeability of urban fabric and connect the key elements of the urban fabric, especially the Mosque and Bazaar to residential areas. There must also be legibility in the urban fabric so that landmarks maintain their accessibility and be easily recognisable. Traditional Islamic characteristics and variety must be maintained and buildings must be resilient to modernisation.

To answer the second question, according to the literature review of this research, which examined the pre-Islamic and Islamic formation of Iranian cities in Chapter 3, section 3.9.3 and Chapter 5, sections 5.5.7 and 5.5.8, it was identified that almost all historic cities in Iran followed the pattern of formation, of which Shiraz historic fabric is one. Therefore, they have common characteristics in terms of religion, politics, economics, socio-culture and physical form. By analysing Shiraz historic fabric, based on the integrated conceptual framework established by this research, the pattern of understanding the issues and identifying the approaches, methods, and techniques for rehabilitation can be transferred to other historic cities in Iran. However, the data relevant to each key factor can be different from case to case based on the social, demographic and economic patterns of those historic cities. From analysis of the findings it can be seen that, for physical rehabilitation of Shiraz historic fabric, there needs to be a new multidimensional strategy. This strategy should: manage and improve urban construction law; establish an action plan for renovating and strengthening residential buildings against natural disasters; revive historic neighbourhood centres and urban activities; establish a new development plan for improving urban infrastructures. Therefore, the recommendations above are proposed at city level and neighbourhood level in order to rehabilitate Shiraz historic fabric effectively.

Based on the summary and analysis of studies presented in the conclusions of chapter 5, 6 and 7, identification of strategic issues and analysis of international experience in the rehabilitation of historic areas presented in Chapter 2 of this research, a series of plans and projects suited to the different characteristics of each neighbourhood's needs for rehabilitation have been diagnosed, varying in terms of urgency of implementation. It also gives the implementation status of rehabilitation phase's priorities and action plans in specific urban areas. In this regard, it should be noted that, due to the existence of common elements in Shiraz historic fabric, some of the titles have been repeated in two or more categories.

In order to present the specific and practical intervention plan it is necessary to say, it seemed that the problems in relation to specific historic areas can be solved only in the form of a series of local and thematic project-plans connected to specific historic areas. However, these results were obtained during the review and analysis of previous phases, in which different problems in historic areas were identified, with diversity in experience. Hence, it proposes that in some city-wide projects, it is necessary to use a detailed basic plan in the agenda of the study. Also, some of the projects are collaborative in nature with adjacent areas that should be defined by urban management scale. The overall aim of these recommendations is to improve the livelihood of the residents of Shiraz historic fabric, by considering the impact of religious identity and law on socio-culture, economy and traditions.

Based on the findings and recommendations of this research, the following chapter will evaluate the research and the limitations of the study, describe the contribution to new knowledge and propose avenues for further research.

Chapter Nine: Conclusion

Introduction

The purpose of this chapter is to construct a holistic rehabilitation plan for Shiraz historic fabric, which could be implemented over the next 5-10 years. It is written and presented in a format that would be of use to planners, politicians and urban designers.

The central theme of this thesis was to develop a new method through the linkage of livelihood theory to the methodology of rehabilitation of historic cities in Iran, with particular reference to Shiraz.

Key problems

Based on empirical observation by the researcher and through literature review, the key problems of Shiraz historic fabric can be summarised as follows:

- The historic fabric is at risk of losing its identity through exhaustion of the physical fabric
- Authorities face pressure to develop economically, but have done so without regard for the livelihood of the residents
- Previous attempts at rehabilitation have been based upon Western models, by focusing solely on protection and demolition, and lacked a holistic approach and failed to preserve cultural heritage and identity
- Authorities recognise the benefits of civic participation but lack the means to implement this strategy

Therefore, the research is designed to answer the question:

How can a rehabilitation approach be developed with consideration towards religious law, politics, economic issues, social issues, urban form and the livelihood of residents in Iranian historic cities?

In order to address this question, the main aim of this research was: to develop an urban design method to establish new principles for rehabilitation of historic cities in Iran. Consequently, five research objectives were developed to achieve the aim of this research:

1. To identify the approaches, methods and techniques of rehabilitation that are used in various historic cities around the world.
2. To develop an integrated conceptual framework, for analysing and understanding the key challenges that are currently facing the historic districts of Iranian cities

and to make a connection with the key elements of livelihood theory to support the rehabilitation of Shiraz historic fabric.

3. To use this integrated conceptual framework for developing a methodology for collecting data for analysing the current challenges that face the historic districts of Shiraz.
4. To use the integrated conceptual framework and methodology for developing and evaluating the key characteristics of the Macro-scale and Micro-scale to propose recommendations for rehabilitating the historic city of Shiraz.
5. To use the findings to propose methods and techniques for rehabilitating the historic districts of Shiraz.

Shiraz was chosen as a case study, due to its pre-Islamic and Islamic history. This city was the capital of the Persian Empire, and after the arrival of Islam it was the capital during the Atabakan and Zand eras. Shiraz historic core contains many different layers of architecture, arts, social and traditional identities and special urban formation by having famous urban monuments such as the citadel, Grand Mosques and the second largest covered bazaar in the Middle East. This city influenced the formation of the other cities during pre-Islamic and Islamic eras, both within and outside Iran. Therefore, it is the perfect candidate for rehabilitating the historic fabric in Iran.

For evaluation of the aim and objectives, this chapter covers five main points as follows:

- Firstly, it identifies the key findings by providing answers to the research questions through the achievement of each objective and the fulfilment of each stage of the investigation.
- Secondly, this chapter discusses how the research has contributed theoretically to new knowledge.
- Thirdly, the research methodology is evaluated, through review of the research strategy and the conceptual framework. The data collection methods and analysis are evaluated through the identification and tackling of issues and it also states the findings' validity and transferability.
- Fourthly it presents the new contribution to knowledge
- Fifthly, it presents potential subjects for additional research.
- Finally, this chapter will present a concluding statement of the research.

9.1 Key findings of the research

This research began with the question, 'How can historic cities in Iran be rehabilitated?' This led to the main research question: '*How can a rehabilitation approach be developed with consideration towards religious law, politics, economic issues, social issues, urban form and the livelihood of residents in Iranian historic cities?'* This was worthy of research because existing policies of rehabilitation in Iran were based upon methods which had been largely used in Western countries and did not recognise the relevance of Islamic law and culture in rehabilitation of Iranian historic cities. This section answers the research questions.

1. *What is urban intervention in historic cities? What are the rehabilitation approaches, methods and techniques?*

Urban intervention is the integration of methods and techniques that can be applied to areas that have complex physical, socio-cultural and economic issues, through non-coherent policies, which affect urban development laws and regulations and are influenced by religious law and perspectives. However, literature reviews reveal that in Iran, urban interventions have been based on Western models, and fail to account for religious aspects and the livelihood of residents. In this regard, there is a conflict between the requirements of religious law that affect development policies on the one hand and the demands of modernisation and how the Western techniques solve issues in Iranian historic cities on the other hand. Therefore, most interventions thus far have concentrated on physical form. Historic houses have been demolished to make way for modern shopping malls and expansion of Grand Mosques, and there has been a lack of comprehensive plan covering both the needs of the historic fabric and the residents at the same time.

Table I.1 showed that rehabilitation is an umbrella term, which consists of three methods and each of these methods in turn consist of various techniques. The three main methods are: renewal, which concentrates on physical form (buildings, landmarks etc.); revitalisation, which focuses on physical and social rehabilitation, such as cultural identity and traditions, and redevelops deprived and derelict urban areas, and finally, urban regeneration, which consists of physical, social and economic rehabilitation, and aims to reverse deprivation in neighbourhoods and create communities with sustainable livelihoods. Each of these methods contains several techniques, which can be applied at different levels of rehabilitation.

2. *What have been the outcomes of rehabilitation interventions in international experience?*

Three examples of rehabilitation interventions in different countries were reviewed. Two examples from Europe were chosen: Bath and Barcelona. Bath was chosen since, like Shiraz, it is a World heritage site. Barcelona was chosen since policies drove the rehabilitation strategies. Cairo was chosen as an example of an Islamic city that also has pre-Islamic history, like Shiraz.

The rehabilitation intervention in Bath focused on policies for rehabilitation with a detailed management plan. The outcome is that the physical historic fabric has been well preserved, social characteristics have been maintained through adaptive reuse and attraction of tourists has helped economic growth in the city. These findings guided the research: to recommend adaptive reuse as a technique for improving social and economic development; to recommend the creation of a detailed management plan, and to recommend the development of infrastructure for attracting tourists as a means for improving economic growth.

In Barcelona, there has been economic and social rehabilitation of different districts, by attracting tourists, gentrification and tackling anti-social behaviour. Many historic buildings have been reconstructed through the renewal of urban form, although the historic validity has been compromised. The outcome of this rehabilitation has been preservation of historic buildings, some improvement in social behaviour and economic sustainability. These findings led the research to propose projects for administrative reforms, involving a wider variety of actors, including residents, in the rehabilitation process, improvement of urban infrastructure, reconstruction of buildings and transforming some of them into tourist centres and attractions, using public spaces as urban nodes, the creation of green spaces, tackle crime and insecurity, integrate land-use and giving a time-scale for projects.

In Cairo, there was a series of intervention policies, including zoning, whereby priority zones were identified, old buildings were restored, and limitations placed on the number of new buildings. Adaptive reuse was used to develop tourism by converting old buildings into tourist attractions and visitor centres. Open spaces were introduced to allow optimum visual appreciation of historic monuments.

However, this was influenced by Western modernism, rather than Islamic style. The outcomes of rehabilitation in Cairo were: socio-cultural and economic benefits of

adaptive reuse of historic buildings; socio-cultural and economic benefits for residents and the city by encouraging participation of residents in rehabilitation; a comprehensive strategy focusing on the whole historic fabric, and the development of policies which are suitable for Islamic cities. As a result of this study, the research proposed priority projects for rehabilitation, adaptive reuse of old buildings as tourist facilities, the upgrading of housing and sanitation services, a participation model to increase awareness of cultural heritage value, which may also create job opportunities and the creation of pedestrianised areas.

These studies guided the research by showing that in order to develop a comprehensive rehabilitation methodology, attention must be paid to several factors at macro-scale and micro-scale. At both levels, the complexity of interrelationships between policies, socio-culture, economy and urban form should be considered, as well as Islamic law and livelihood of residents.

3. *How can urban historic fabric in Iran be rehabilitated with consideration of religious law and the livelihood of residents?*

Chapter 3 identified that Islamic ideology and urban structure are connected by Islamic guidelines that regulate the dimensions and formation of the built environment. Social values concerning public and private life also influence the built form, such as the shared lifestyle and the importance of family, which influenced urban patterns and buildings, and the need for privacy and gender segregation, which resulted in patterns such as dead-end streets and *mashrabriya* (privacy screen). Therefore, urban historic fabrics in Iran need to be rehabilitated with consideration of these requirements.

In terms of livelihood, there are four social scales: security, neighbourhood, family and individuals. Livelihood does not consist solely of earning income, but it also covers a wider range of activities such as retaining access to resources and opportunities, dealing with risk and managing social networks within communities. Therefore, a rehabilitation strategy for Iranian cities needs to focus on means of economic sustainability for whole communities and households as well as individuals. It also needs to reflect the diversity of individuals and of the circumstances of urban areas.

4. *What is the most appropriate conceptual framework for proposing a rehabilitation strategy for Iranian historic cities?*

Due to the complexities of the elements involved as well as the interactions between different aspects of the historic fabric and socio-culture, a multi-dimensional conceptual framework was developed (Chapter 3). The five key factors that were identified from literature review and formed components of the conceptual framework are religious, political, economic, socio-cultural and physical factors of the historic fabric of Shiraz. However, the complexity of the dimensions involved could cause difficulties in truly representing the interpretation of the data. Therefore, the components of the framework were further sub-divided into five parts, with each part depicting the key interactions between components (Figure 3.26). Literature review identified the most important components of rehabilitation and livelihood theory, which support each other, and their interactions were included in the conceptual framework (Figure 3.27). This was later confirmed by in-depth analysis of case studies. Not only did the framework contribute to an understanding of the formation of Iranian historic cities, but it also identified key factors required in rehabilitation.

These factors vary in relevance and importance depending on the context and the areas of study. Therefore, the conceptual framework was designed to aid understanding of the multifaceted issue of urban areas and to lead to a new holistic approach to the rehabilitation of historic fabric by presenting the long-term, medium-term and short-term recommendations.

Figure 9.1 shows the rehabilitation approach as the umbrella, with methods and five key components. The key components can be filtered by livelihood theory and urban design approaches. The integration of interconnections between the key components in livelihood theory and rehabilitation can establish the methodology for analysing information at macro level and micro level. At the next stage, the second part of the livelihood theory, which consisted of methods, namely renewal, revitalisation and urban regeneration, are used to identify the findings of strengths, weaknesses opportunities and threats, which can also lead those findings to become practical recommendations in both macro and micro interventions of rehabilitation. These recommendations can be categorised based on the time-scale and the structure and budget of the government and private sector investment in three levels: short-term, medium-term and long-term interventions in the historic fabric. Within these three time-scales there are also grades of priority for the various proposed projects.

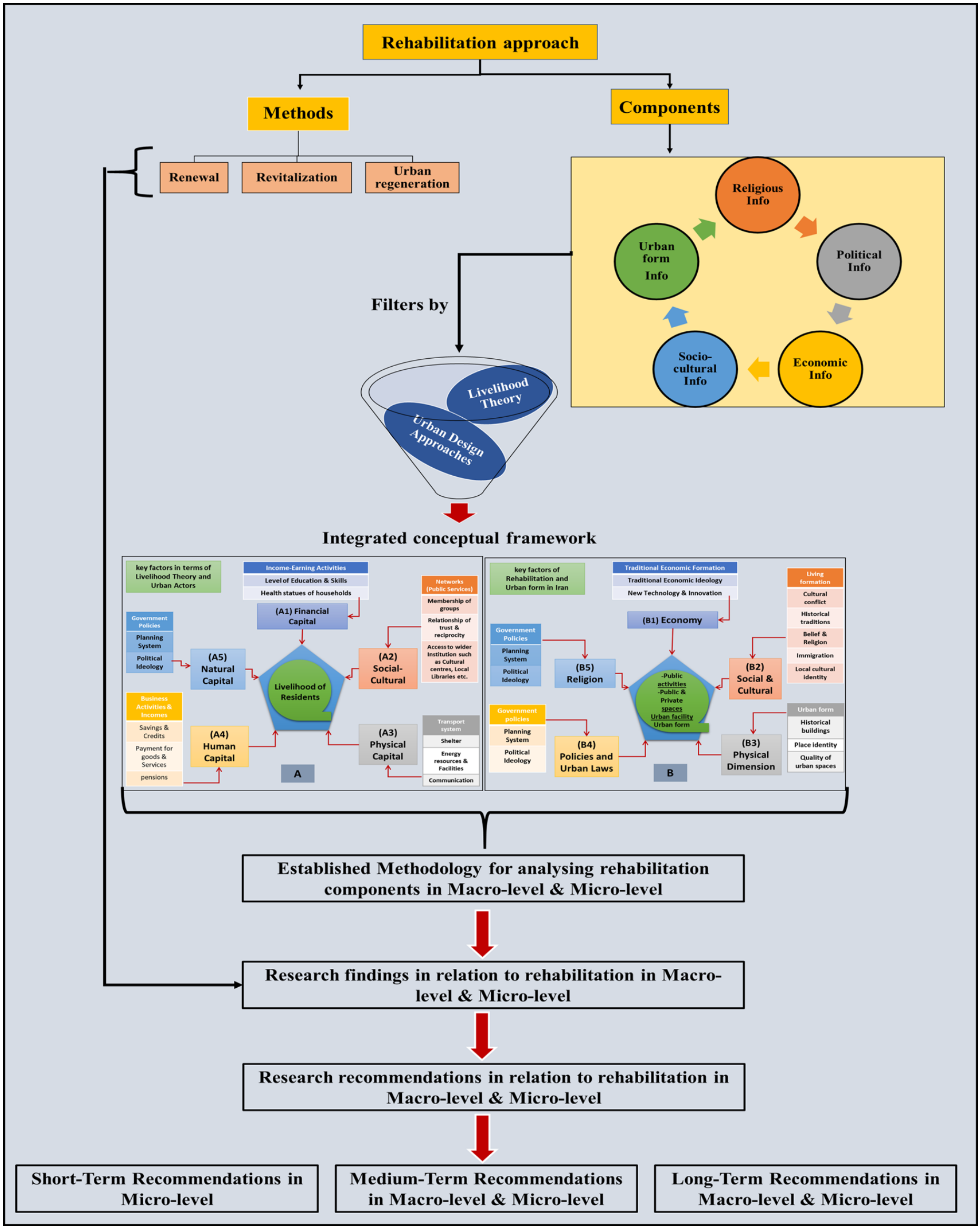

Figure 9. 1 Complete methodology for developing a rehabilitation strategy for historic cities in Iran.

5. *Which methodology can be used to collect and analyse information for identifying the challenges in the rehabilitation of historic fabric in Iran?*

By answering questions 1-4, of this research, an integrated conceptual framework was developed which identified that there are five key factors that affect the rehabilitation process in Iranian cities: religion, politics, economics, socio-culture and physical form. These five key factors are interconnected to five key elements of livelihood theory. Due to the complexity of these factors, a multi-method approach was implemented.

A case-study approach was used to give an in-depth understanding of the religious, political, economic, socio-cultural and physical issues facing Iranian historic cities in the context of rehabilitation. An ethnographic study was used for this research, since this research deals with socio-culture, economy, religion, politics, migration, tradition, livelihood and urban morphology, to gain a greater depth of understanding of these topics.

Questionnaires were used to collect both qualitative and quantitative information from residents to understand the actions of rehabilitation at neighbourhood level. Semi-structured interviews were conducted with key actors and analysed for content, as identified by the conceptual framework of this research, to analyse the actions of rehabilitation at a city-wide level and from the perspective of politicians, designers and constructors. An urban morphology study was applied at both micro and macro level to understand the physical aspect of rehabilitation. Shiraz historic fabric was analysed as a case study, using GIS analysis, census data, municipality reports to analyse the five key aspects of rehabilitation. Field observations and photography were undertaken by the researcher in order to complete the analysis. Subsequently, Space Syntax analysis was used to identify the most problematic areas within the historic fabric. Two sub-case studies were thus chosen in order to examine rehabilitation factors, urban design qualities and livelihood of residents in depth. The formation of the neighbourhoods and their structure was analysed through the examination of the historic passages and monuments that played the key role in micro level.

The outcome of this analysis is the presentation of findings in relation to each key factor of rehabilitation. The analysis of the findings presents recommendations in relation to rehabilitation methods and techniques, which consider preservation, protection, restoration, demolition, clearance, and reconstruction, leading to conversion, adaptive reuse or consolidation. Each of those should be combined with Islamic law and livelihood theory.

6. *How do religion, politics and economics affect the urban form at a macro and micro level?*

At macro level, the research examined religious, political and economic factors in Chapter 5. GIS analysis, ethnographic analysis and interviews with key actors in Shiraz historic fabric were used to identify the effects of these factors on the urban form. The outcome of the analysis of the relevant information revealed that although religious, political and economic buildings were essential elements around which the early urban form shaped, interventions in recent years have expanded religious and economic buildings, based on western models of modernisation, to the detriment of residents' livelihood, by demolishing many historic homes. Therefore, this research recommends that a rehabilitation policy be developed which considers religious aspects and economic growth, but based on Islamic policies with the livelihood of residents as a key consideration. One example of this would be to use local mosques as local training centres, as well as having religious function, to provide training in skills to increase residents' employability. This would involve the expansion of mosques as a space for interaction of religious, economic and socio-cultural activities. The mosques must also have improved accessibility from residential zones.

At micro scale, the research also examined these three key factors in Chapters 6 and 7 in depth in two neighbourhoods. Questionnaires, interviews and map analysis were used to collect the relevant information. SPSS analysis, GIS analysis and RADAR analysis were used to analyse the relevant data. The outcome of these analyses answered the research question as follows: In both neighbourhoods, it was identified that many religious buildings, such as mosques, schools and shrines were the basis for the urban form, around which houses and roads were constructed. Houses were built orientated towards Mecca, as the centre of the Islamic world. Plots and buildings were thus affected by religion. The narrow passages based on measurements from the early Islamic period influenced the character of the neighbourhoods. The idea of equality between neighbourhoods also comes from Islamic ideology. Islamic policies were used to form both sub-case studies, for example, privacy constructions in homes, using the hierarchy of privacy (public, such as open spaces; semi-public, such as residential alleys; semi-private, such as shared entrances to houses, and private, such as homes). Economic factors were seen more clearly in the second sub-case study due to the presence of Vakil Bazaar, although small bazaars and local shops also influenced the formation of the first sub-case study.

In recent years, the expansion of Shah-Cheragh Grand Mosque and the construction of Bein-Al-Haramein shopping mall have both resulted in mass demolition of houses, which has resulted in a steep increase in population density in the residential area of the second sub-case study. It is evident that Islamic policies only focused on the expansion of the mosque and not the needs of the Muslim residents.

In order to overcome this issue, it is proposed to increase the capacity of housing around the periphery of the historic fabric, by establishing a new development policy whereby properties are increased from one storey to three or four storeys. This helps to redistribute the population density, by shifting some residents from the centre to the edge and puts less pressure on traffic systems within the historic fabric. This addresses the needs of the residents and allows for the mosque to retain its central importance.

7. *How can a rehabilitation approach improve both the socio-cultural environment and physical form at a macro and micro level?*

At the macro scale, the research used the integrated conceptual framework to examine the socio-cultural environment and physical form of Shiraz historic fabric in Chapter 5. In this regard, the research used GIS analysis, ethnographic analysis and interviews with key actors. It was identified that a large number of immigrants, particularly Afghans, have settled in certain areas of the historic fabric. This has resulted in: a reduction in literacy levels; a shift in religious status, since many of the immigrants are Sunni, rather than Shia; an increase in population density, and lower levels of engagement in community activities. The immigrants are attracted by low-price housing and tend to be tenants rather than home-owners. Therefore, they are less likely to participate in improvements to their homes or the local urban fabric. In terms of physical form, Shiraz historic fabric has two histories of formation, which can be classified as pre-Islamic and Islamic eras. In terms of pre-Islamic, the physical form was shaped by trade routes and some key monuments such as the citadel, bazaar and caravanserai. Residential areas shaped around these routes. In Islamic era, all of these elements were maintained and reused by applying some changes in order to be compatible with Islamic ideology and some elements like mosques, schools and public baths were added to the urban form to provide public services to the residents. The hierarchy of routeways – streets, passages, dead-end alleys – was established to provide privacy, connections and accessibility to the residents, based on Islamic law.

Formation of blocks, plots and houses was influenced by religious law which dictated the direction of plots towards Mecca and also considered climatic factors – direction of airflow, sun and use of local materials – providing shade on the streets by covering parts of the passageway. Courtyards were also used to give increased privacy to households and optimise comfort in temperature.

At the micro-scale, it was identified that immigration has affected different neighbourhoods in different ways. In the first sub-case study, immigration has had a noticeable effect on population density, religious status and literacy levels. However, in the second sub-case study, the effect on all of these was much greater, due to a high proportion of Afghan immigrants. SWOB analysis led to the identification of participation as a key solution to many of the socio-cultural and physical issues in both sub-case studies. Firstly, participation can increase the skillsets of the residents, leading to greater employability. Secondly, it can improve the cultural identity and community interaction of the residents, leading to greater civic pride and an increased willingness to protect and maintain the historic fabric.

Thirdly, more can be achieved with the participation of residents, making optimum use of their local and functional knowledge of the area and a greater number of actors in the rehabilitation process.

According to Chapter 3 Figure 3.2, livelihood has five key components, which relate to the five key aspects of rehabilitation. Livelihood strategies focus on individuals, households, communities and local and distant stakeholders to improve income, increase wellbeing, reduce vulnerability, improve food security and improve social inclusion. In terms of policy, livelihood is also connected to government and private sectors that relate to national and local laws, policies, culture and institutions. Therefore, it can be stated that poverty reduction is at the heart of livelihood. Livelihood theory develops policies and strategies that are people-centred, involving participation between residents, and public and private sector organisations. Finally, livelihood policies are organised according to whether projects promote or hinder livelihood opportunities. Therefore, a livelihood-centred approach can help to improve rehabilitation since it involves residents in many aspects of rehabilitation.

According to the literature review chapters and analysis of both international and national cases, it can be stated that many historic cities lack mixed-use areas, which is a major cause of exhaustion of historic fabrics and failure to comply with new requirements. Therefore, the current urban development master plan for Iranian historic fabrics should be revised to enable better integration between them and modern parts of the city. In order to achieve that goal, it is necessary to redesign some parts of the historic neighbourhoods with lower historical values and design mixed-use places to improve the quality of life and environment consistent with current social, economic, cultural, religious and technological demands.

Therefore, in order to improve the urban form, rehabilitation should intervene in physical and social factors, by: focusing on buildings and landmarks; creating mixed-use areas; conserving cultural and traditional identity; reversing deprivation in neighbourhoods; creating sustainable communities; increasing literacy levels, and encouraging participation of residents in rehabilitation.

8. *What will be the best urban design approach for rehabilitation of Shiraz historic fabric?*

Chapter 8 identified that four key aspects of urban design (permeability, legibility, variety and resilience) must be addressed in order to develop and ensure quality of life, built form, public spaces and urban environment. In terms of permeability, the Mosque and Bazaar must remain well-connected to the residential areas and be accessible to others from outside of the historic fabric. In order to preserve legibility in the historic fabric, landmarks must be carefully maintained to be easily recognisable and accessible. Variety deals with the characteristics of the place, so the Islamic values upon which the urban fabric was built must be preserved in order to maintain the patterns of urban activities. The urban form must also be made resilient to cope with the demands of modernisation, such as widened streets to allow vehicular and emergency access and adequate waste disposal infrastructure.

This research proposes a new rehabilitation approach, which integrates livelihood theory with urban design qualities and the rehabilitation methods and techniques, by recognising the Islamic law and characteristics in all interventions at macro level and micro level.

9. *How can a rehabilitation approach in Shiraz be applied to other Iranian historic cities?*

A rehabilitation strategy for other Iranian cities can be developed using the same methodology in terms of the key the aspects of rehabilitation. In terms of religion, the main religion of Iran is Islam. Therefore, all cities have been influenced by Islamic ideology and law for several centuries. Understanding this key aspect of rehabilitation identifies the issues, gathering information and analysis of the data through the methodological approach presented by this study can be applied to other historic cities in Iran.

Due to Islamic law being applied consistently across Iran, the methodology in terms of politics can be easily transferred to other Iranian cities. As most Iranian cities were built on historic trade routes, and feature a bazaar pattern as one of the foundational economic elements of the city, the economic part of the methodology can be transferred to other Iranian cities. However, patterns of employment and housing prices will differ between cities, so this part of the methodology will need to be adapted on an individual city basis.

Although most Iranian cities share a pre-Islamic and Islamic culture, there are local differences due to immigration, literacy and ethnicities. Therefore, some elements of the methodology regarding socio-culture can be easily transferred to other Iranian historic cities, by collecting data regarding ethnicity, education level and immigration patterns.

Most Iranian historic cities followed the same pattern of formation, which consists of the citadel, bazaar, Grand Mosque, public services, such as public baths, passages and organic pattern. The organic pattern was formed with consideration for climatic factors, such as shade and air circulation. Therefore, the organic patterns need to be studied for this methodology to be transferable to other Iranian historic cities. Therefore, the methodology used to create recommendations for a rehabilitation policy, may be applied to other Iranian cities. However, the data from each city will be different, therefore should be collected individually and analysed based on the methodology that this research presented.

Although many Islamic cities across the Middle East share common characteristics, in terms of religion, climate and economic patterns, cultural and historical differences do not allow this methodology to be directly transferable to Islamic cities in other countries. However, with some adaptations in accordance with cultural differences, the methodology can be a basis for a rehabilitation strategy.

9.2 Key contribution to new knowledge

In the second phase of this research it was important to find the methodological, theoretical and empirical contributions to knowledge. There are two main empirical contributions to knowledge resulting from this research, which are as follows:

- First, it has developed a conceptual framework for identifying and analysing five key elements and examining their interrelationships in the process of rehabilitation of historic fabrics.
- Second, it has developed a methodology for collecting and analysing data in relation to holistic rehabilitation of historic cities at macro-level and micro-level.

The integrated conceptual framework contributes to knowledge through the integration of the five key rehabilitation factors (religion, politics, economics, socio-culture and physical form) with urban design qualities and livelihood theory. It identifies different dimensions and components for the analysis and understanding of how a policy in support of rehabilitation of urban heritage can be established. The framework helped to focus the research on the interactions between the five key components of livelihood theory, while maintaining their relevance to the urban context. The multi-faceted nature of the conceptual framework reflects the complexity of both the context and the process of rehabilitation and therefore sheds light on the need to ascertain a comprehensive understanding of the urban environment. The development of the theoretical framework illuminated and analysed the strengths, weaknesses, opportunities and barriers of the rehabilitation of historic fabrics in Iranian cities.

This research contributes a new methodology by developing a holistic approach to understanding the issues for intervention in historic cities in Iran. This involved analysis at all levels of the city: questionnaires and interviews at both the highest and lowest ends of the scale of urban stakeholders, i.e. both actors and residents. It analysed at both city-wide level and neighbourhood level, down to individual passages. Analysis considered five aspects in depth and recognised the unique characteristics of the Islamic city. This methodology could be used by other researchers in other historic Islamic cities.

This research's contribution to knowledge could be useful to several organisations concerned with historic city rehabilitation. These include: Shiraz Municipality, UNESCO and UNDP. This is useful because it provides a unique conceptual framework and strategic plan based on a combination of livelihood theory and urban design methods.

9.3 Evaluation of the research methodology

This section reviews the overall methodology of the research. The methodology was designed to achieve the main aim of the research: to develop an urban design method to establish new principles for rehabilitation of historic cities in Iran.

9.3.1 Evaluation of the type of data and data collection strategies

The methodology used was both qualitative and quantitative because it allowed the researcher to investigate a wide range of perceptions and opinions of key stakeholders in order to gain a greater understanding of the issues involved and to design potential approaches for rehabilitation. It also covered all the elements of livelihood theory and rehabilitation.

Primary qualitative data was collected through interviews with key stakeholders in the rehabilitation process. These included government officials, designers, developers and consultants. This allowed the researcher to understand the political and physical issues at greater depth. However, a limitation of this method was that the interviewees were often unwilling to offer any comments on sensitive issues such as religion, due to the nature of the religious government in Iran. Primary quantitative data was collected through questionnaires with residents in the two sub-case study zones. 400 questionnaires were distributed in each neighbourhood, in order to return the required number of 350 questionnaires in each sub-case study (Appendix 3). This allowed the researcher to gather useful information about the neighbourhoods and identify priorities for a rehabilitation strategy. However, a limitation of this method was that only literate residents were able to respond, so the views of illiterate residents have not been obtained. Another limitation was the inability of the residents to illustrate their living conditions, so the researcher decided to remove this question from the questionnaire.

The use of a main case study with two sub case studies was appropriate for this subject because an in-depth analysis was required to identify a variety of issues and aspects of the urban context instead of merely gaining an overview of the current situation of rehabilitation in Shiraz. This included gaining a complete understanding of interactions of livelihood theory components in a real-world context at both micro and macro level and highlighted the complexity of the rehabilitation process. Although it was useful to compare two very different zones as sub-case studies, it also made comparisons difficult when in one zone religion and economics had more influence, while in the other zone socio-cultural factors were more influential.

9.3.2 Evaluation of the research strategies

The research strategy for this investigation was constructed from the following elements:

- Interpretive epistemology based on a socio-cultural approach
- A conceptual framework, which combined theoretical approaches and practical methodology.
- Qualitative and quantitative surveys
- Case study analysis at macro-level and two sub-case study analyses at micro-level
- Radar analysis
- Presentation of relevant and final recommendations

This strategy was used because it not only enabled the research aims and objectives to be achieved but it also led to a deeper understanding of the research subject. However, it was not without limitation. One major limitation of the process was the time taken to complete the research process. However, it offered challenges and opportunities for further research. Another limitation was the destruction by ISIS of some of the original examples studied in literature review, such as Aleppo, Syria and Baghdad, Iraq, which occurred after the research process had begun. This rendered any previous rehabilitation efforts void. Additionally, the distance of the case study meant that travelling and consulting with specialised sources were limited.

As explained above, this thesis first focused on the effects of five key elements in the process of rehabilitation of historic areas in Iranian cities. This integration of practice and theory, constructed from livelihood theory and urban design qualities, considered the interactions between the components of these key factors and people. Consequently, the concept of rehabilitation of historic cities used in this research is better understood within this conceptual framework.

Examining interconnecting theories allowed this research to develop an initial conceptual framework as a basis for the research. Analysis of the examples led to feedback that further informed and refined the conceptual framework, aiding the researcher to better understand the subject of rehabilitation and construct the thesis. This process acknowledged how complex and dynamic the subject is and how theory and practice are intrinsically intertwined in the process of rehabilitation.

9.3.3 Evaluation of the analytical framework

As mentioned in Chapter 4, SWOB analysis was used to analyse religious, political and socio-cultural factors in the historic fabric. This allowed the researcher to identify the strengths, weaknesses opportunities and barriers of these factors in the historic fabric. However, it did not allow the researcher to prioritise actions, so RADAR analysis and SPSS were used to identify priorities.

GIS analysis was used to analyse all five key factors of rehabilitation. It allowed the researcher to identify patterns of distribution of religious, economic and socio-cultural factors in the historic fabric. One of the challenges of using this analytical software was gaining permission to access the databases, collected by different government bodies. The software is complex and requires a great deal of experience in order to use it successfully.

RADAR analysis was performed on the data obtained through questionnaires of the priorities of residents concerning rehabilitation factors. This allowed the researcher to identify, compare and contrast the priorities for rehabilitation in the two sub-case studies.

SPSS analysis was used to analyse socio-cultural and economic data. This was useful for the researcher because it showed patterns of immigration, income, expenditure, patterns of vehicle use, shopping trends, access to religious and commercial areas, quality of urban environment, gender ratio, education levels of the residents and ethnicity. This enabled the researcher to understand how socio-cultural factors affect the urban form and how this will affect a rehabilitation strategy. When compiling the data and analysis, coding the questionnaire responses was challenging.

Space Syntax analysis was used to analyse urban morphology data and showed the researcher the urban design qualities of the historic fabric. Access to this software was limited for researchers working out of the UK, as the software is provided by UCL, London. A high level of knowledge about urban form, urban design and map analysis is needed to use this software.

9.3.4 Evaluation of the identification of the key problems and potential for rehabilitation in Shiraz

To identify key problems and potential, the researcher reviewed theory regarding problems faced by residents in urban historic areas. A conceptual framework was designed and integrated with the key concepts of livelihood theory. This allowed the researcher to evaluate the success of interventions in historic fabric, which was based on Western approaches and experiences. Therefore, the researcher evaluated three international examples from Europe and an Islamic city to investigate how a rehabilitation strategy for Shiraz could be developed.

The research aimed not only to analyse physical transformations but also to manage strategies related to the five components of livelihood theory. In this way, the research aimed to develop a methodology which would engage stakeholders in the historic context and enable them to participate in the policy-making and formulation of a preliminary rehabilitation project. (Chapter 8, section 8.2.3).

The research strategy connected practice with theory to identify theoretical principles, which could then be applied to other contexts – to practical strategies. However, the research did not achieve any practical rehabilitation efforts at the time of writing. An initial small-scale rehabilitation project would have tested the validity of the research proposals.

9.4 Recommendations for further research

This research focused on the development of a rehabilitation strategy for Shiraz historic fabric, which aims to improve the livelihood of residents. However, during the course of the research, the author found that there were many areas that could be further explored but that fall outside the remit of this research. Therefore, the research recommends the following areas as having potential for further research.

9.4.1 Recommendations for further research in Shiraz

Having completed the research it became very obvious that the implementation of a successful rehabilitation strategy is dependent on and requires a fundamental change of attitude and policy by the regional and local authorities. The following questions, which fell outside of the remit of this research require addressing:

- Does the local government have the financial capability to implement an adequate rehabilitation strategy? Does it have the resources available to manage the physical urban historic environment?
- How can communication and partnerships be developed between the municipality and other organisations involved in the rehabilitation of the historic fabric?
- How does a rehabilitation strategy integrate with the requirements of organisations such as UNESCO?

These questions are potentially subjects for further research and are considered crucial in being able to implement the findings of this research.

9.4.2 Recommendations for further research on rehabilitation of historic fabric in Iran

This investigation centred on Shiraz as a case study of historic city rehabilitation. Further research could be undertaken in alternative contexts in Iran and the Middle East. This would enable comparison of the effects of the five components of livelihood theory on other urban historic areas and allow for further testing and refinement of the framework. Thus, the methodology and policies for the rehabilitation of historic Islamic cities would be strengthened.

As explained above, one of the main reasons for conducting this research was to inform planning and urban design policies for the optimisation of rehabilitation strategies in urban historic cities in Iran. The findings of the research can be used as a tool for evaluation of current strategies and policies and ideally, to refine and enhance planning policies and design criteria. If so, the conceptual framework and methodology could be used as a basis for further research.

For further research, it must be remembered that each city has its own unique characteristics and therefore for rehabilitation of historic fabric, there is a need to evaluate the key components that may vary in effectivity on the process of rehabilitation. The sustainability of such rehabilitation must be considered for further research.

Conclusion

In conclusion, this research has shown that in the process of rehabilitation in historic Iranian cities, a multi-dimensional approach needs to be taken. In regard to future practitioners implementing the frameworks developed in the research the following actions are recommended:

- Use the integrated conceptual framework provided by this research to identify the key issues in the area, relating to religion, politics, economics, socio-culture and physical form.
- Collect relevant data, through the methodology provided by this research, according to the issues identified at macro and micro level, involving both urban actors and residents.
- Analyse the findings at both macro and micro level.
- Propose a series of general and detailed recommendations and present short-term, medium-term and long-term rehabilitation plans, identifying which governmental bodies should be involved and means of financial support.

This approach needs to pay specific attention to the residents of the historic fabric as well as the needs of the physical form. The residents' religion, cultural values and livelihoods need to be preserved and enhanced. Physical interventions also need to be undertaken in keeping with Islamic law and values. It also needs to be recognised that pre-Islamic culture and form has influenced the physical form and this pre-Islamic culture is as much part of Iranian life as the Islamic culture. The cultural heritage of the fabric, therefore, needs to be preserved and residents should participate in the rehabilitation process so that they can pass on their cultural heritage to future generations.

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Appendices

Appendix 1

An Urban Design Method for Rehabilitating Historic Cities in Iran, With Particular Reference to Shiraz

Guide to interviews

Controllers (Politicians and Government Officials)

Introduction
The interview is part of a field survey in order to analyse the quality of place and quality of urban infrastructure in relation to rehabilitation historic neighbourhoods.
The outcome of this interview will contribute to PhD research currently being carried out in the field of urban quality. It will also contribute an important and useful tool for urban design practice leading towards high quality public space based on cultural needs in Shiraz.

Instruction
The interview consists of four parts. The first is concerned with general information about your role; the second part is about your interests in conservation and rehabilitation historic neighbourhoods; the third part relates to the issues in the current policy; and the final part is about your opinions on rehabilitation process within historic areas in Shiraz. You are kindly required to describe your opinion, and add any further comments in the designated spaces.

Thank you very much for your participation

Part One: General information about role and responsibility of respondent

1. Are you?
   Politicians ☐ Government Officials ☐
2. What is your role and responsibility in the rehabilitation process of historic neighbourhoods in Shiraz?
3. What does the rehabilitation historic neighbourhood mean to you?
4. What are the most important elements of historic areas in your opinion? Why?
5. In what way are you engaged in control and management the quality of urban spaces within historic area in Shiraz?
6. How do you collect the information about the historic neighbourhoods; also how do you process these information's?
7. How do you make decisions about different aspects of improving the quality of historic urban areas?
8. Dose the residents in any way participate in the process of increasing the quality of their neighbourhoods in historic context of Shiraz? How?
9. Do you have any comments?

Part Two: The interests of actors

10. From your point of view as part of control mechanism of the public space, what factors are important for you to operate effectively towards achieving to rehabilitation historic areas and improving the quality of urban open spaces?

NO		Not at all	little	Average	much	Very much
1	Intangible culture/ folklore events/ Islamic events/ festivals					
	Why?					
2	Historical context and spatial structure of public space					
	Why?					
3	Historical buildings and urban infrastructures					
	Why?					
4	Belief and religion of residents					
	Why?					
5	Public facilities and services (shops, parking, hospital etc.)					
	Why?					
6	How important the Livelihood aspects such as income, well-being, vulnerability and culture are for residents					
	Why?					
7	Participation of residents in relation to rehabilitation historic area					
	Why?					
8	The importance of accessibility of residents to different parts of historic areas					
	Why? Or How?					
9	Legibility and social use of public spaces					
	Why?					
10	Affectivity of law or legislation in relation to rehabilitation historic neighbourhoods					
	Why?					
11	Assess the affectivity of urban landscape, sense of place, social interaction in relation to improve urban space quality and livelihood of residents					
	Why?					
12	Contribution of local residents to social and environmental health					
	Why?					
13	Intangible culture/ folklore events/ Islamic events/ festivals					

Part Three: Question for policies

11. As mentioned in policy, in order to protect and develop historical cultural sources of the city, and its character, it is important to integrate the historical culture with contemporary modern urban condition as one of the key purpose to improve the quality of urban environment. Base on that, could you give your opinion on the following points:
    - In which aspects you think it is important to integrate the historical culture with contemporary modern urban environment?
    - In which aspect of morphological level you think it is important to integrate the historical areas with modern areas?
    - In which aspects urban infrastructures can affect the process of rehabilitation and conservation within historic areas?

12. Do you support the idea of mixed land uses for different people, needs and interests?
13. Do you think tax exemptions, financial subsidise or other investments can promote place-identity?
14. What is your idea about the relationship between different departments, which they have dealing with urban development, socio-cultural and economic issues in relation to rehabilitation and conservation?
15. Do you think it is possible to characterised different type of procedures and spatial patterns for formal and informal urban growth?
16. What is the relation between livelihood of residents and urban space quality? How it can affect the rehabilitation process within historic cities?

Part Four: Information about cases

17. In current two cases in relation to rehabilitation and conservation process, could you give your opinion on the following points:

    Lab Abb neighbourhood Bazar Morgh neighbourhood

18. In what way are you engaged with the process of improvement, rehabilitation and conservation within these two areas?
19. Could you please explain positive and negative aspects of rehabilitation and conservation process within historical context?
20. Are there any transferable lessons you think is important in terms of rehabilitation historic neighbourhoods can be implemented in the future urban development in relation to conservation of historic areas?
21. Is there anything else that you want to add?

Thank you very much

Appendix 2

An Urban Design Method for Rehabilitating Historic Cities in Iran, With Particular Reference to Shiraz

Guide to interviews

Producers (Developers and Designers)

Introduction
The interview is part of a field survey in order to analyse the quality of place and quality of urban infrastructure in relation to rehabilitation historic neighbourhoods.
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Thank you very much for your participation

Part One: General information about respondent

1. Are you?

   Developers ☐ Designers ☐

2. What is your role and responsibility in the rehabilitation process of historic neighbourhoods in Shiraz?
3. What does the rehabilitation historic neighbourhood mean to you?
4. What are the most important elements of historic areas in your opinion? Why?
5. In what way are you engaged in control and management the quality of urban spaces within historic area in Shiraz?
6. How do you collect the information about the historic neighbourhoods; also how do you process these information's?
7. How do you make decisions about different aspects of improving the quality of historic urban areas?
8. Dose the residents in any way participate in the process of increasing the quality of their neighbourhoods in historic context of Shiraz? How?
9. Do you have any comments?

NO		Not at all	little	Average	much	Very much
1	Quality of building in neighbourhoods					
	Why?					
2	Quality of public spaces					
	Why?					
3	Historical buildings and urban infrastructures					
	Why?					
4	Safety					
	Why?					
5	Liveliness					
	Why?					
6	Livelihood of residents					
	Why?					

Part Two: The interests of actors

10. From your point of view as part of development mechanism of urban development, what factors are important for you to operate effectively towards achieving to rehabilitation historic areas and improving the quality of urban open spaces?

NO		Not at all	little	Average	much	Very much
1	Intangible culture/ folklore events/ Islamic events/ festivals					
	Why?					
2	Historical context and spatial structure of public space					
	Why?					
3	Historical buildings and urban infrastructures					
	Why?					
4	Belief and religion of residents					
	Why?					
5	Public facilities and services (shops, parking, hospital and ect.)					
	Why?					
6	Livelihood of residents					
	Why?					
7	Participation of residents in relation to rehabilitation historic area					
	Why?					
8	Accessibility of residents to different parts of historic areas					
	Why? Or How?					
9	Legibility and social use of public spaces					
	Why?					

10	Affectivity of law or legislation in relation to rehabilitation historic neighbourhoods					
	Why?					
11	Assess the affectivity of urban landscape, sense of place, social interaction in relation to improve urban space quality and livelihood of residents					
	Why?					
12	Contribution of local residents to social and environmental health					
	Why?					
13	Intangible culture/ folklore events/ Islamic events/ festivals					

Part Three: Question for policies

Based on the main policy (Shiraz Master Plan 2010-2020), could you give your opinion in following questions?

11. Are there any government policies or regulations affect your design or invest?
12. Which policies or regulations?
13. How do they affect or limit your design or invest?
14. Do you support the idea of mixed land uses for different people, needs and interests?
15. Do you think tax exemptions, financial subsidise or other investments can promote place-identity?
16. What is your idea about the relationship between different departments, which they have dealing with urban development, socio-cultural and economic issues in relation to rehabilitation and conservation?
17. Do you think is it possible to characterised different type of procedures and spatial patterns for formal and informal urban growth?
18. What is the relation between livelihood of residents and urban space quality? How it can affect the rehabilitation process within historic cities?
19. Is there anything else that you want to add?

Thank you very much

Appendix 3

An Urban Design Method for Rehabilitation Historic Cities in Iran, With Particular Reference to Shiraz

QUESTIONNAIRE FOR HOUEHOLD SURVEY

Introduction

The questionnaire is part of a field survey in order to analyse the quality of place and quality of urban infrastructure in relation to rehabilitation of historic neighbourhoods.

The outcome of this questionnaire will contribute to PhD research currently being carried out in the field of urban quality. It will also contribute an important and useful tool for urban design practice leading towards high quality public space based on cultural needs in Shiraz.

Thank you very much for your participation

General information

1. Locality: .....
2. Occupation: .....

No. of family members: .....

Sex(1)	Relation (2)	Age(3)	Education /occupation(4)

3. What is the internal area of your house (square meter)? .....
4. How many rooms are there? .....
5. How long have you been living in the Shiraz central historic core?
   .....
6. Why did you move to this area?
   .....
7. Are you a landlord or Tenant?
   .....
8. If you are tenant do you rent the house? ☐ Yes ☐ No
   If yes how many percent of your income can be spent for improving the quality of your property (per year)? .....
9. Do you know when this house was constructed?
   .....
10. How much do you approximately spend on the annual maintenance of the building?

White Wash 1	Repairs 2	Electrical works 3	Gas 4	Telephone 5	Others

11. How are you satisfied with the major infrastructure facilities in your area?

Facility	Satisfactory	Non-satisfactory	Remarks
Water Supply			
Electricity			
Sanitation			
Solid-Waste Management			
Health Clinic			
Fire Station			
Quality of lighting			
Safety of place			
Mosque			
Urban Open spaces (Park)			

12. Do you run a business from your house? What kind of business do you run?

……

13. How do you commute in Shiraz?

Walk ☐ Bicycle ☐ car ☐ Motorcycle ☐ Public transport ☐

If by car where do you park?

On street ☐ off street ☐ surrounding open areas ☐ private parking ☐ public parking ☐
Other ☐ , Please specify

……

14. Where do you go for shopping? Groceries / fruits / vegetables and Clothes

Old Bazar ☐ Local Market ☐ Suburban ☐ Others ……

15. What are your leisure activities? Where are the facilities located? ·

Parents: ……
Grandparents:……
Children……

16. Does the City Municipal Council provide urban services? Yes ☐ No
    If no what are the reasons?

……

17. What is the most significant building in your area?
    ……..

18. What do you like most about the area you live in? Would you please specify?
    ……

19. What are the things that you dislike about this area?
    ……

20. What do you see as strengths, weaknesses, opportunities and threats in Central Historic Core?

    Strengths: ……...

    Weaknesses:……

    Threats:……

    Opportunities: ……

21. Would you like to move to some other area with better infrastructure facilities?

    Yes ☐ No ☐
    If yes; what are your reasons and where would you like to move?
    ……

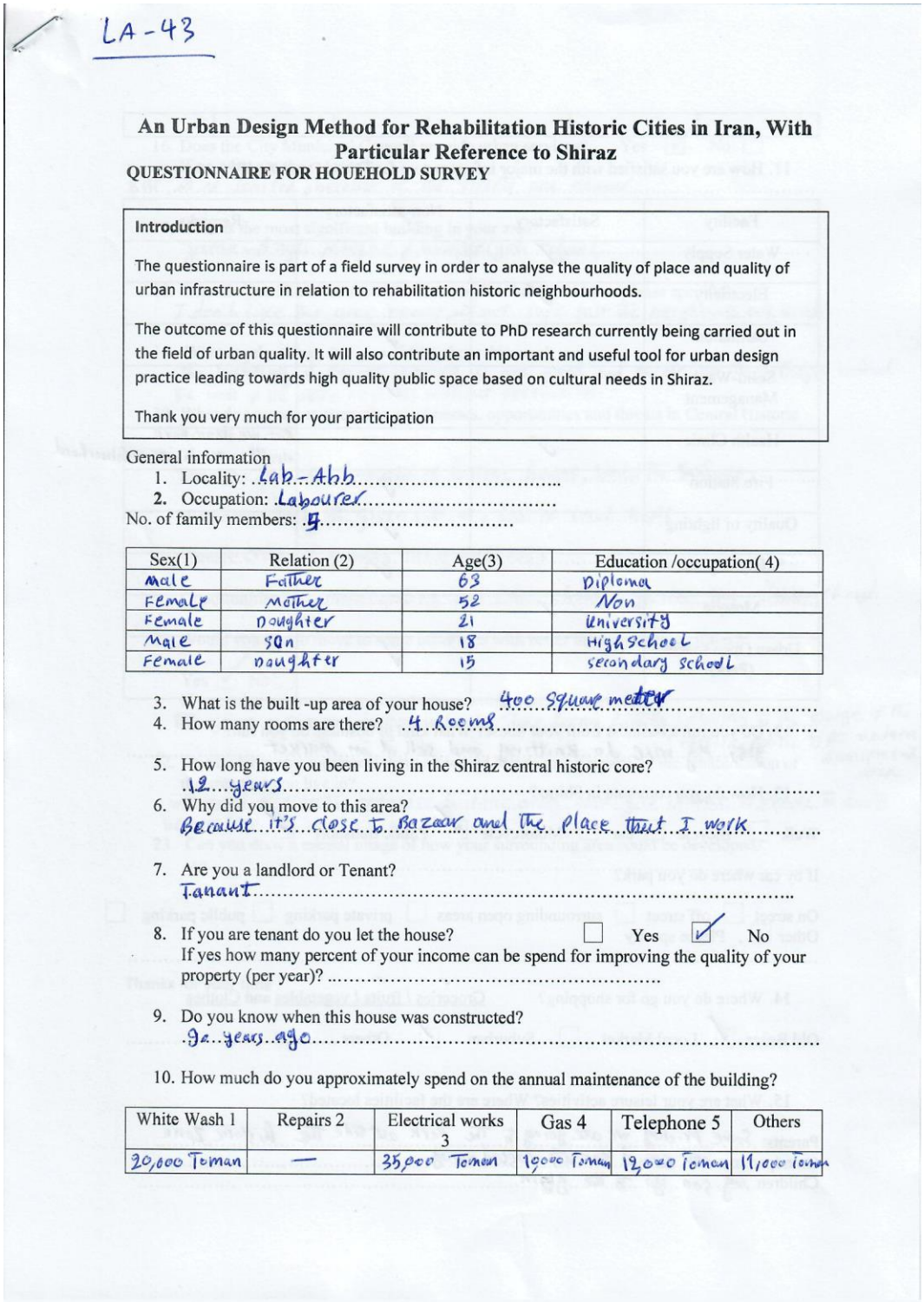
22. Do you have any comments that you would like to make regarding the rehabilitation of the area that you live in?
    ……

23. Can you draw a mental image of how your surrounding area could be developed?
    ……..……

Thanks for your time

Questionnaire samples

Sample one: Sub-case study one



LA-43

An Urban Design Method for Rehabilitation Historic Cities in Iran, With Particular Reference to Shiraz

QUESTIONNAIRE FOR HOUEHOLD SURVEY

Introduction

The questionnaire is part of a field survey in order to analyse the quality of place and quality of urban infrastructure in relation to rehabilitation historic neighbourhoods.

The outcome of this questionnaire will contribute to PhD research currently being carried out in the field of urban quality. It will also contribute an important and useful tool for urban design practice leading towards high quality public space based on cultural needs in Shiraz.

Thank you very much for your participation

General information

1. Locality: Lab-Abb
2. Occupation: Labourer

No. of family members: 5

Sex(1)	Relation (2)	Age(3)	Education /occupation(4)
Male	Father	63	Diploma
Female	Mother	52	Non
Female	Daughter	21	University
Male	Son	18	High school
Female	Daughter	15	secondary school

3. What is the built -up area of your house? 400 Square meter
4. How many rooms are there? 4 Rooms
5. How long have you been living in the Shiraz central historic core?
   12 years
6. Why did you move to this area?
   Because it's close to Bazaar and the place that I work
7. Are you a landlord or Tenant?
   Tanant
8. If you are tenant do you let the house? ☐ Yes ☑ No
   If yes how many percent of your income can be spend for improving the quality of your property (per year)? .....
9. Do you know when this house was constructed?
   9a years ago
10. How much do you approximately spend on the annual maintenance of the building?

White Wash 1	Repairs 2	Electrical works 3	Gas 4	Telephone 5	Others
20,000 Toman	—	35,000 Toman	10000 Toman	12,000 Toman	11,000 Toman

11. How are you satisfied with the major infrastructure facilities in your area?

Facility	Satisfactory	Non-satisfactory	Remarks
Water Supply	✓		
Electricity	✓		
Sanitation		✓	
Solid-Waste Management		✓	
Health Clinic	✓		But we don't have Health center in our neighboorhood
Fire Station		✓	
Quality of lighting		✓	
Safety of place		✓	
Mosque	✓		
Urban Open spaces (Park)		✓	

12. Do you run a business from your house? What kind of business do you run?
yes, my wife do knitting and sell it in market

13. How do you commute in Shiraz?

Walk ☐ Bicycle ☐ car ☐ Motorcycle ☑ Public transport ☑

If by car where do you park?

On street ☐ off street ☐ surrounding open areas ☐ private parking ☐ public parking ☐
Other ☐ , Please specify
.....

14. Where do you go for shopping? Groceries / fruits / vegetables and Clothes

Old Bazar ☑ Local Market ☐ Suburban ☑ Others .....

15. What are your leisure activities? Where are the facilities located?

Parents: Some Friday we are going to the Park outside the historic zone
Grandparents: our grand parents passed away
Children: my son go to the gym

16. Does the City Municipal Council provide urban services? Yes ☑ No ☐
If no what are the reasons?
But it is limited, because of the streets are narrow.

17. What is the most significant building in your area?
Jame-A tigh Mosque / manstır iyeh school

18. What do you like most about the area you live in? Would you please specify?
I don't like this area because it's not safe but the neighbours are kind.

19. What are the things that you dislike about this area?
The lighting & street quality is not good and people put the garbages behind the wall of the other neighbours without protection.

20. What do you see as strengths, weaknesses, opportunities and threats in Central Historic Core?

Strengths: This area has alot of historic houses, build the schools,

Weaknesses: lack of green spaces, lack of local shops

Threats: criminal gangs, drug dealers,

Opportunities: The municipality and Polic should organize thy neighbourhood.

21. Would you like to move to some other area with better infrastructure facilities?

Yes ☑ No ☐
If yes; what are your reasons and where would you like to move?
The reason is to make better and safer life for my family / Moving to the edge of the historic fabric to the modern development area

22. Do you have any comments that you would like to make regarding the rehabilitation of the area that you live in?
we need a plan to organise historic area and give chance to people to have better life

23. Can you draw a mental image of how your surrounding area could be developed?
no

Thanks for your time

Sample two: Sub-case study one

LA – 102

An Urban Design Method for Rehabilitation Historic Cities in Iran, With Particular Reference to Shiraz

QUESTIONNAIRE FOR HOUEHOLD SURVEY

Introduction

The questionnaire is part of a field survey in order to analyse the quality of place and quality of urban infrastructure in relation to rehabilitation historic neighbourhoods.

The outcome of this questionnaire will contribute to PhD research currently being carried out in the field of urban quality. It will also contribute an important and useful tool for urban design practice leading towards high quality public space based on cultural needs in Shiraz.

Thank you very much for your participation

General information

1. Locality: Lab – Abb
2. Occupation: Self employed

No. of family members: 3

Sex(1)	Relation (2)	Age(3)	Education /occupation(4)
Femail	mother	47	Diploma
Femail	Daughter	18	High School
male	son	16	Secaundary school

3. What is the built -up area of your house? 110 m^2
4. How many rooms are there? 2
5. How long have you been living in the Shiraz central historic core?
   7 years
6. Why did you move to this area?
   Because I my husband and he passed away 2 years after we moved in
7. Are you a landlord or Tenant?
   Tenant
8. If you are tenant do you let the house? ☑ Yes ☐ No
   If yes how many percent of your income can be spend for improving the quality of your property (per year)? ...No
9. Do you know when this house was constructed?
   ..No.., but it is old house
10. How much do you approximately spend on the annual maintenance of the building?

White Wash 1	Repairs 2	Electrical works 3	Gas 4	Telephone 5	Others
17000 Toman	5 000 Toman	30,000 Toman	8,000 Toman	8,000 Toman	11,000 Toman

11. How are you satisfied with the major infrastructure facilities in your area?

Facility	Satisfactory	Non-satisfactory	Remarks
Water Supply	✓		
Electricity	✓		
Sanitation	✓		
Solid-Waste Management		✓	
Health Clinic		✓	
Fire Station		✓	
Quality of lighting		✓	
Safety of place		✓	
Mosque	✓		
Urban Open spaces (Park)		✓	

12. Do you run a business from your house? What kind of business do you run?
Yes, I do cleaning and make decorating objects

13. How do you commute in Shiraz?

Walk ☑ Bicycle ☐ car ☐ Motorcycle ☐ Public transport ☑

If by car where do you park?

On street ☐ off street ☐ surrounding open areas ☐ private parking ☐ public parking ☐
Other ☐ , Please specify
.....

14. Where do you go for shopping? Groceries / fruits / vegetables and Clothes

Old Bazar ☑ Local Market ☑ Suburban ☐ Others .....

15. What are your leisure activities? Where are the facilities located?

Parents: Park and shaping walls
Grandparents: No Grand parents
Children: they go to training courses

16. Does the City Municipal Council provide urban services? Yes ☑ No ☐
If no what are the reasons?
.....

17. What is the most significant building in your area?
Sayed Alaeddin Hassein shrine

18. What do you like most about the area you live in? Would you please specify?
The access to the main Road, close to the mosque, close to the public transport

19. What are the things that you dislike about this area?
lack of Green spaces, lack of urban furniture, unorganized waste collection

20. What do you see as strengths, weaknesses, opportunities and threats in Central Historic Core?

Strengths: accessability to different parts of the neighbourhood

Weaknesses: lack of urban & life quality as lack of existance of place for young childere to spend their time and do healthy activities

Threats: Beerays, drauge dealers, unsecure during the night

Opportunities: The area can be better by refurbishing the old hauses and the road surfaces and re-create the swages system

21. Would you like to move to some other area with better infrastructure facilities?

Yes ☑ No ☐
If yes; what are your reasons and where would you like to move?
To have better life quality and I prefeare to go to the west part of the historic ~~zone~~ district

22. Do you have any comments that you would like to make regarding the rehabilitation of the area that you live in?
I think every one live in this area needs Government support and financial support.

23. Can you draw a mental image of how your surrounding area could be developed?
N/A

Thanks for your time

Sample one: Sub-case study two

ES–11

An Urban Design Method for Rehabilitation Historic Cities in Iran, With Particular Reference to Shiraz

QUESTIONNAIRE FOR HOUEHOLD SURVEY

Introduction

The questionnaire is part of a field survey in order to analyse the quality of place and quality of urban infrastructure in relation to rehabilitation historic neighbourhoods.

The outcome of this questionnaire will contribute to PhD research currently being carried out in the field of urban quality. It will also contribute an important and useful tool for urban design practice leading towards high quality public space based on cultural needs in Shiraz.

Thank you very much for your participation

General information

1. Locality: Eshagh – Baig
2. Occupation: Teacher

No. of family members: .....

Sex(1)	Relation (2)	Age(3)	Education /occupation(4)
male	Father	47	master
Femail	mother	40	Diploma
Femail	daughter	12	secoundry school

3. What is the built -up area of your house? 110 squaremeter
4. How many rooms are there? 3
5. How long have you been living in the Shiraz central historic core?
   12 years
6. Why did you move to this area?
   Because of my occupation
7. Are you a landlord or Tenant?
   Landlord
8. If you are tenant do you let the house? ☐ Yes ☐ No
   If yes how many percent of your income can be spend for improving the quality of your property (per year)? .....
9. Do you know when this house was constructed?
   30 years ago
10. How much do you approximately spend on the annual maintenance of the building?

White Wash 1	Repairs 2	Electrical works 3	Gas 4	Telephone 5	Others
25,000 Tomen	12,000 Tomen	35,000 Tomen	10,000 Toma	12,000 Tomen	15,000 Toma

11. How are you satisfied with the major infrastructure facilities in your area?

Facility	Satisfactory	Non-satisfactory	Remarks
Water Supply	✓		
Electricity	✓		
Sanitation	✓		
Solid-Waste Management		✓	
Health Clinic	✓		
Fire Station		✓	
Quality of lighting	✓		
Safety of place		✓	
Mosque	✓		
Urban Open spaces (Park)		✓	

12. Do you run a business from your house? What kind of business do you run?

No.....

13. How do you commute in Shiraz?

Walk ☐ Bicycle ☑ car ☐ Motorcycle ☐ Public transport ☑

If by car where do you park?

On street ☐ off street ☐ surrounding open areas ☐ private parking ☑ public parking ☐
Other ☐ , Please specify
.....

14. Where do you go for shopping? Groceries / fruits / vegetables and Clothes

Old Bazar ☑ Local Market ☐ Suburban ☑ Others .....

15. What are your leisure activities? Where are the facilities located? ·

Parents: going to gym. to the mountain around Shiraz. swimming pool.....
Grandparents: They came to visit us. going to historic building and Mosque.....
Children: She goes several classes such as music class.....

16. Does the City Municipal Council provide urban services? Yes ☑ No ☐
If no what are the reasons?
.....

17. What is the most significant building in your area?
Shah Cheragh Mosque, Aliqa Mosque, Bain-Al-Haramain Mall

18. What do you like most about the area you live in? Would you please specify?
The area is live, The accessebility to the shops, Masque and it has good public Transport

19. What are the things that you dislike about this area?
The Traffic and air plution,

20. What do you see as strengths, weaknesses, opportunities and threats in Central Historic Core?

Strengths: it is powerfull area for Tourist attraction, for business

Weaknesses: lack of Traffic management system, lack of parking, lacck of green spaces

Threats: Thives, Ceenges, Drug dealers,

Opportunities: lots of empty spaces exist that can Ture into better spaces or building by designing based on the needs of the residents

21. Would you like to move to some other area with better infrastructure facilities?

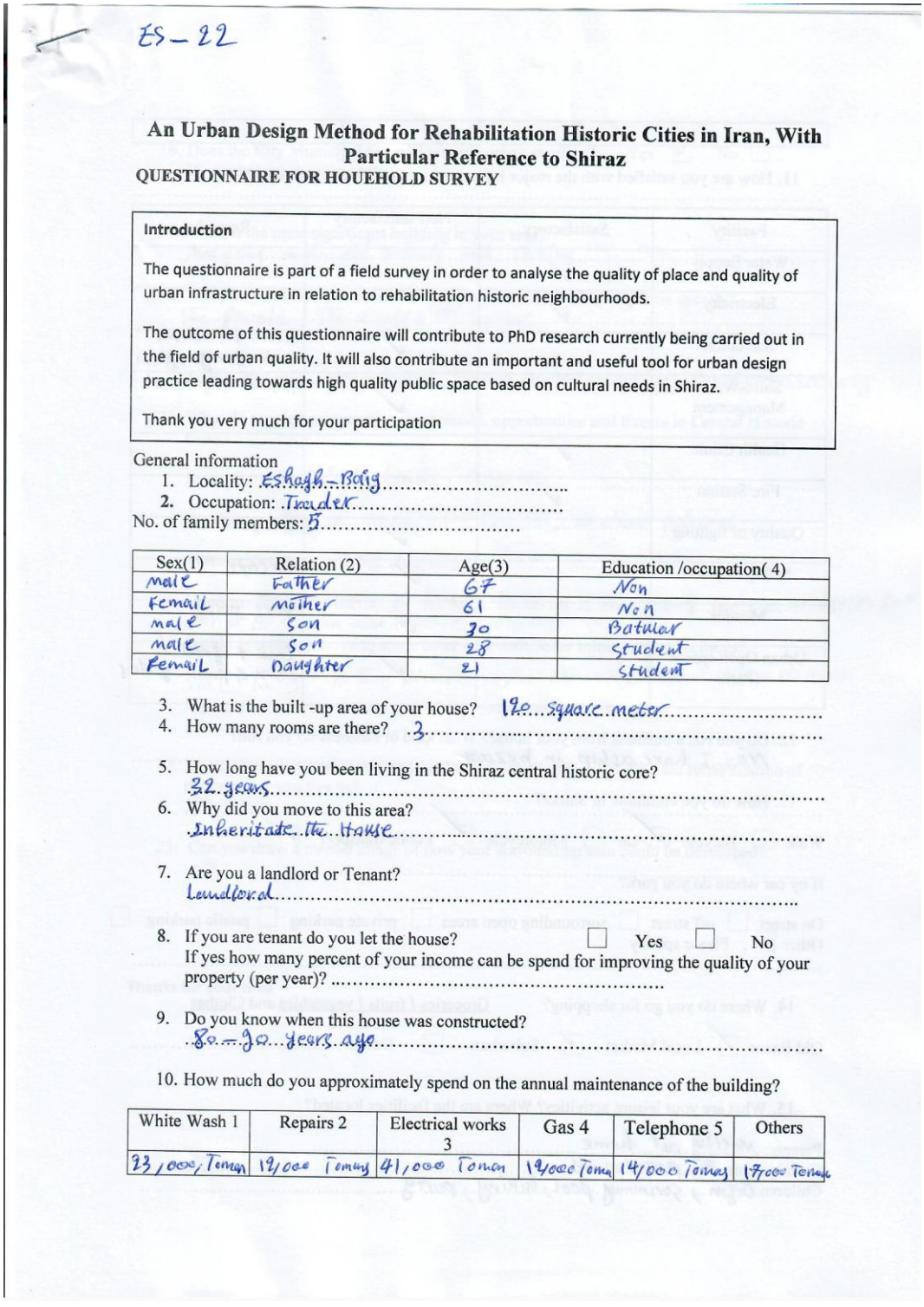
Yes ☐ No ☑
If yes; what are your reasons and where would you like to move?
.....

22. Do you have any comments that you would like to make regarding the rehabilitation of the area that you live in?
The historic fabric needs strategic plan and development plan for rehabilitation in order to make the commitment of the different organisation to be responsible

23. Can you draw a mental image of how your surrounding area could be developed?
.....

Thanks for your time

Sample two: Sub-case study two



ES – 22

An Urban Design Method for Rehabilitation Historic Cities in Iran, With Particular Reference to Shiraz

QUESTIONNAIRE FOR HOUEHOLD SURVEY

Introduction

The questionnaire is part of a field survey in order to analyse the quality of place and quality of urban infrastructure in relation to rehabilitation historic neighbourhoods.

The outcome of this questionnaire will contribute to PhD research currently being carried out in the field of urban quality. It will also contribute an important and useful tool for urban design practice leading towards high quality public space based on cultural needs in Shiraz.

Thank you very much for your participation

General information

1. Locality: Eshagh – Baig
2. Occupation: Trader

No. of family members: 5

Sex(1)	Relation (2)	Age(3)	Education /occupation(4)
male	Father	67	Non
Femail	mother	61	Non
male	Son	30	Batular
male	Son	28	Student
Femail	Daughter	21	Student

3. What is the built -up area of your house? 120 square meter
4. How many rooms are there? 3
5. How long have you been living in the Shiraz central historic core? 32 years
6. Why did you move to this area? Inheritate the House
7. Are you a landlord or Tenant? Landlord
8. If you are tenant do you let the house? ☐ Yes ☐ No
   If yes how many percent of your income can be spend for improving the quality of your property (per year)? .....
9. Do you know when this house was constructed? 80 – 90 years ago
10. How much do you approximately spend on the annual maintenance of the building?

White Wash 1	Repairs 2	Electrical works 3	Gas 4	Telephone 5	Others
23,000 Toman	19,000 Toman	41,000 Toman	19,000 Toman	14,000 Toman	17,000 Toman

11. How are you satisfied with the major infrastructure facilities in your area?

Facility	Satisfactory	Non-satisfactory	Remarks
Water Supply	✓		
Electricity	✓		
Sanitation		✓	alots of problems with sewage system
Solid-Waste Management		✓	it's not organised
Health Clinic	✓		
Fire Station	✓		
Quality of lighting		✓	it's poor
Safety of place		✓	unsafe
Mosque		✓	very noisy
Urban Open spaces (Park)		✓	Lack of good park as public gardens

12. Do you run a business from your house? What kind of business do you run?
No, I have a shop in bazaar

13. How do you commute in Shiraz?

Walk ☐ Bicycle ☑ car ☐ Motorcycle ☑ Public transport ☑

If by car where do you park?

On street ☐ off street ☐ surrounding open areas ☐ private parking ☐ public parking ☐
Other ☐ , Please specify
.....

14. Where do you go for shopping? Groceries / fruits / vegetables and Clothes

Old Bazar ☑ Local Market ☑ Suburban ☐ Others .....

15. What are your leisure activities? Where are the facilities located?

Parents: mostly out home
Grandparents: They passed away
Children: Gym, swimming pool, hiking, party

16. Does the City Municipal Council provide urban services? Yes ☑ No ☐
If no what are the reasons?
.....

17. What is the most significant building in your area?
Mosques and old schools and shrine

18. What do you like most about the area you live in? Would you please specify?
The people, The access to the bazaar

19. What are the things that you dislike about this area?
Alleys are not well designed they are narrow, Lighing, safety and security

20. What do you see as strengths, weaknesses, opportunities and threats in Central Historic Core?

Strengths: Social - Traditions, economy

Weaknesses: lack of management system, unclear policies

Threats: Crimes, Drug dealers

Opportunities: Existance of historic building as monuments that can be assets for Tourist attraction and improve economy

21. Would you like to move to some other area with better infrastructure facilities?

Yes ☐ No ☑ in they provide better environment and urban services
If yes; what are your reasons and where would you like to move?
.....

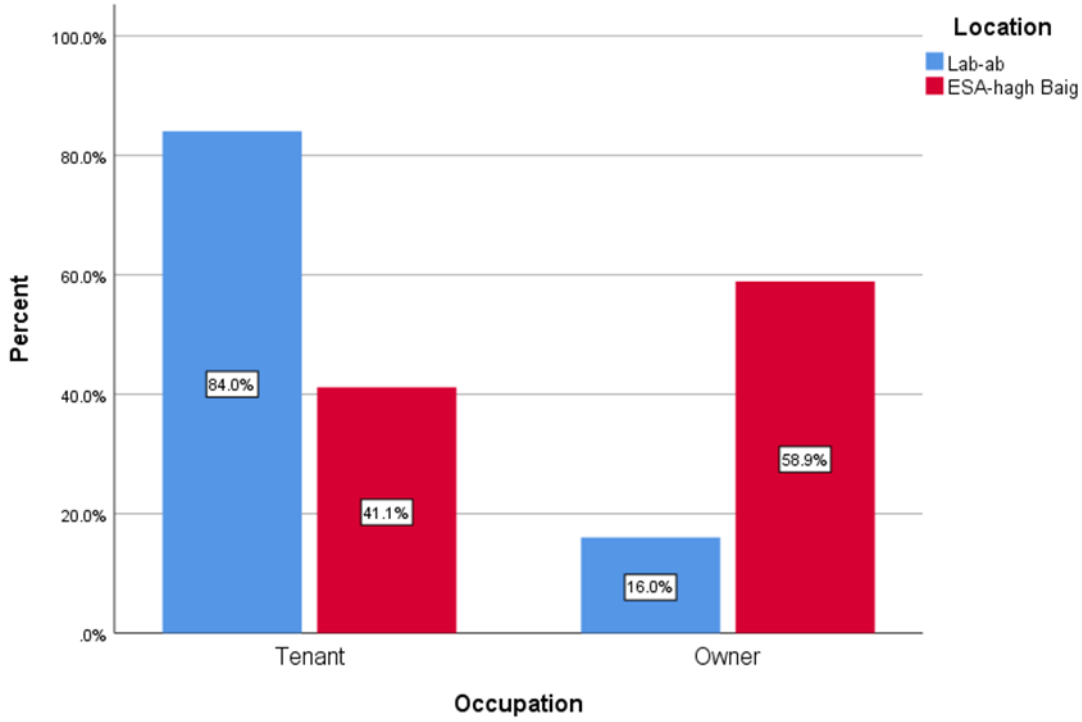
22. Do you have any comments that you would like to make regarding the rehabilitation of the area that you live in?
No

23. Can you draw a mental image of how your surrounding area could be developed?
No

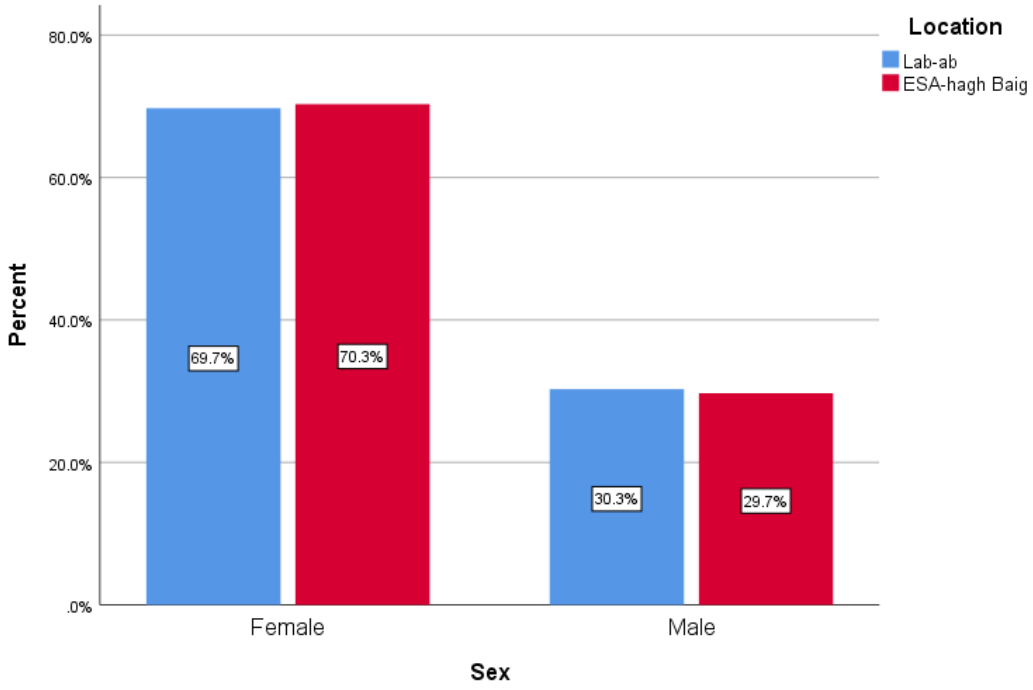
Thanks for your time

Appendix 3: Analysis of results

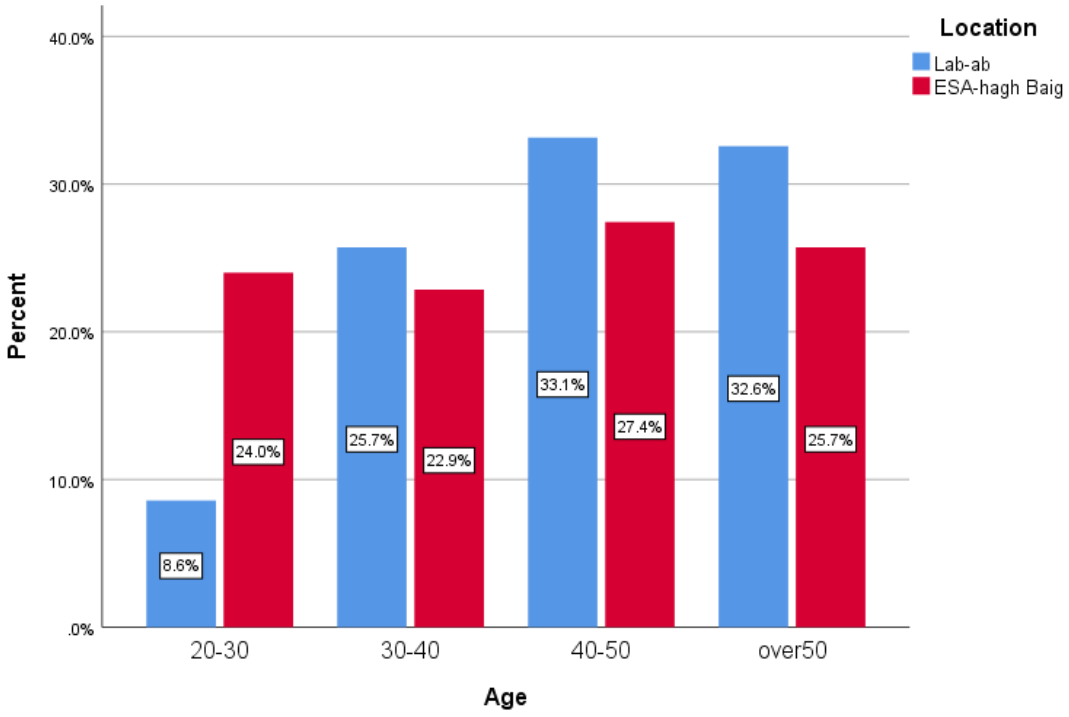
Question 2



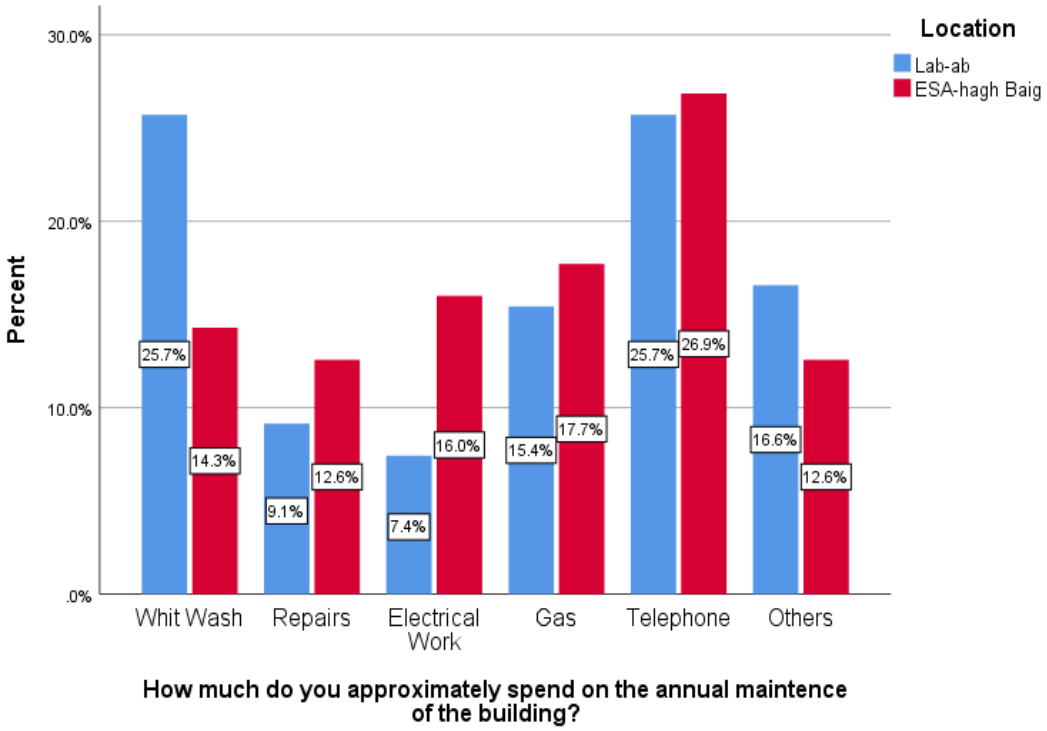
Question 2-A



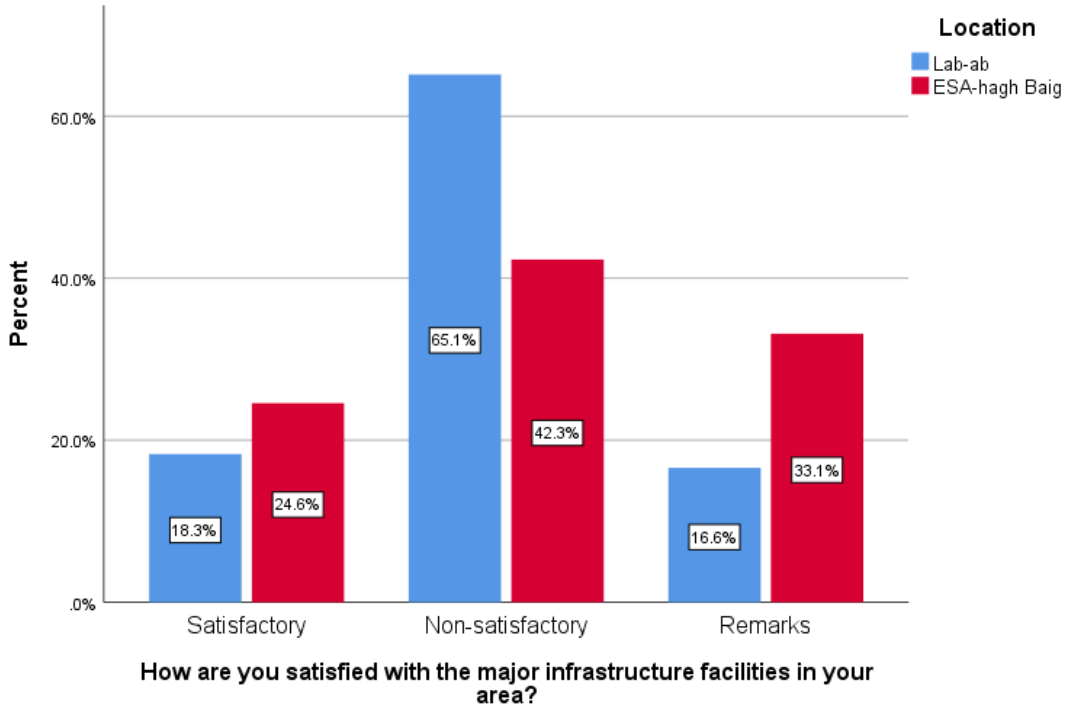
Question 2-B



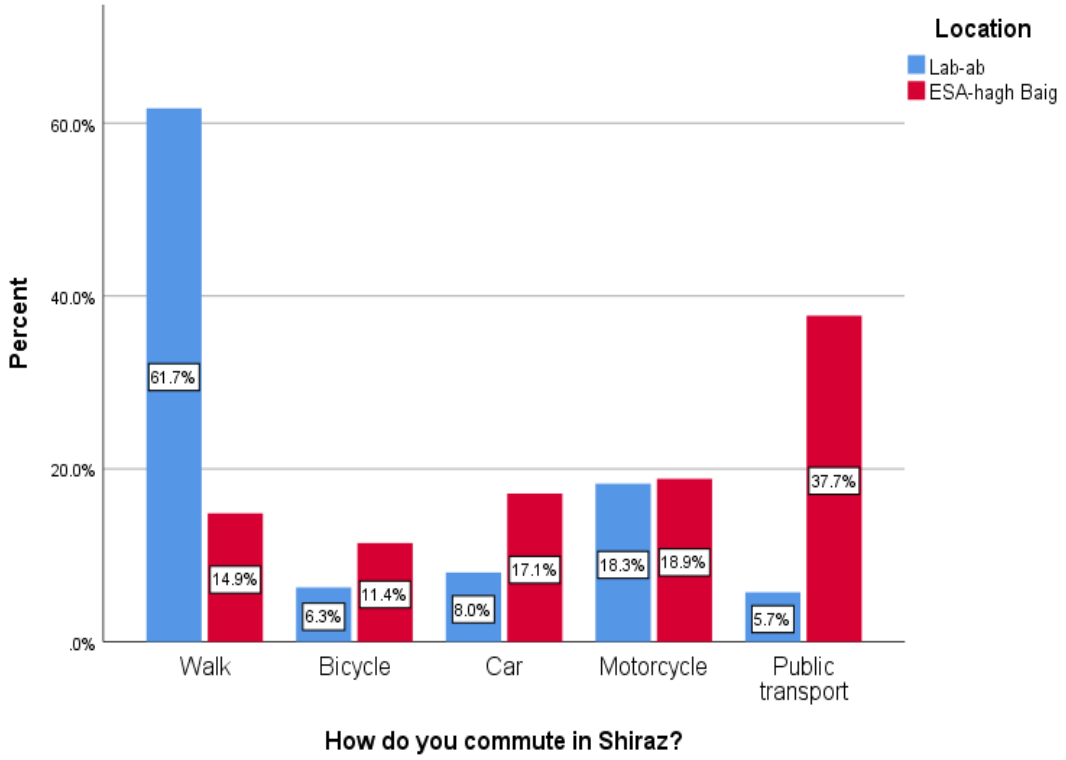
Question 10



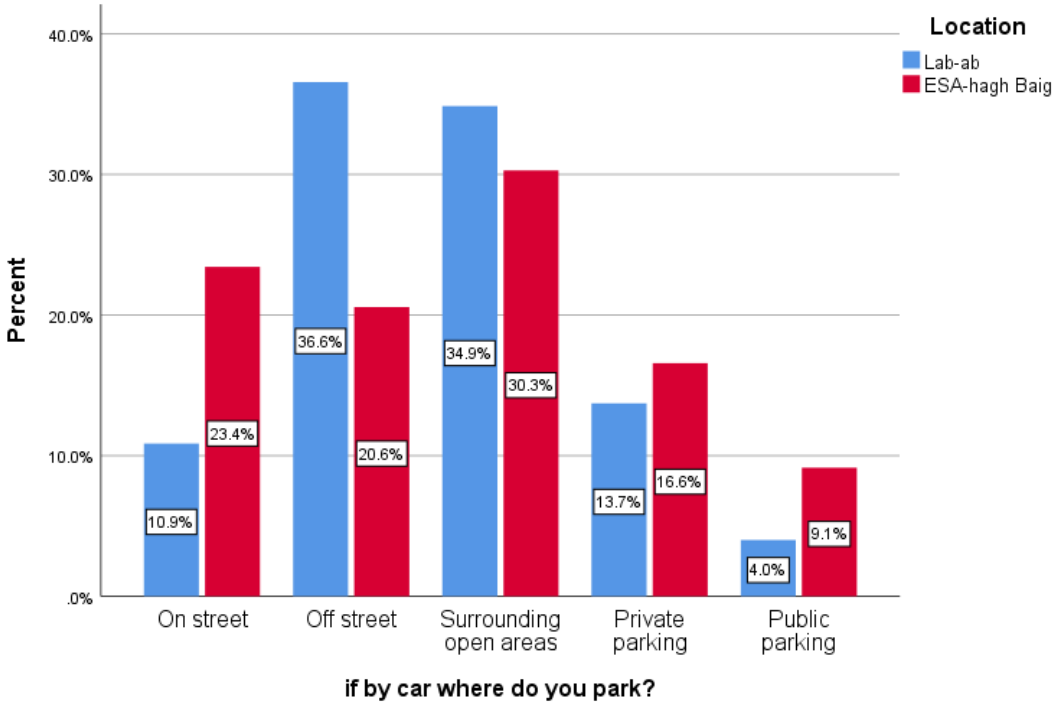
Question 11



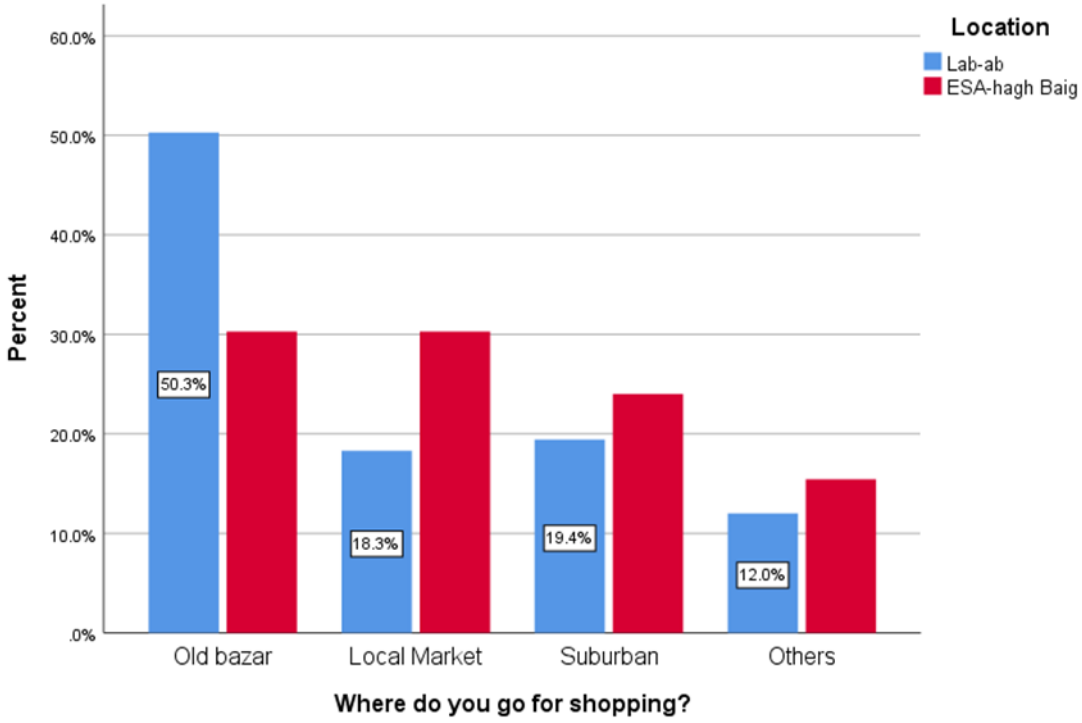
Question 13



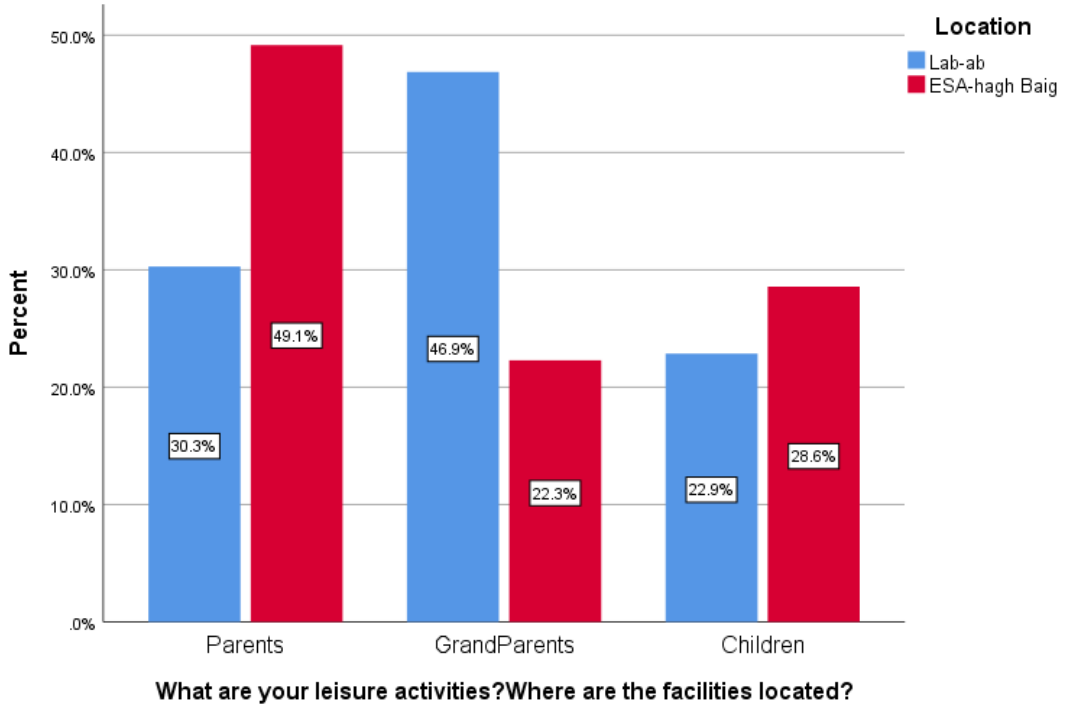
Question 13-A



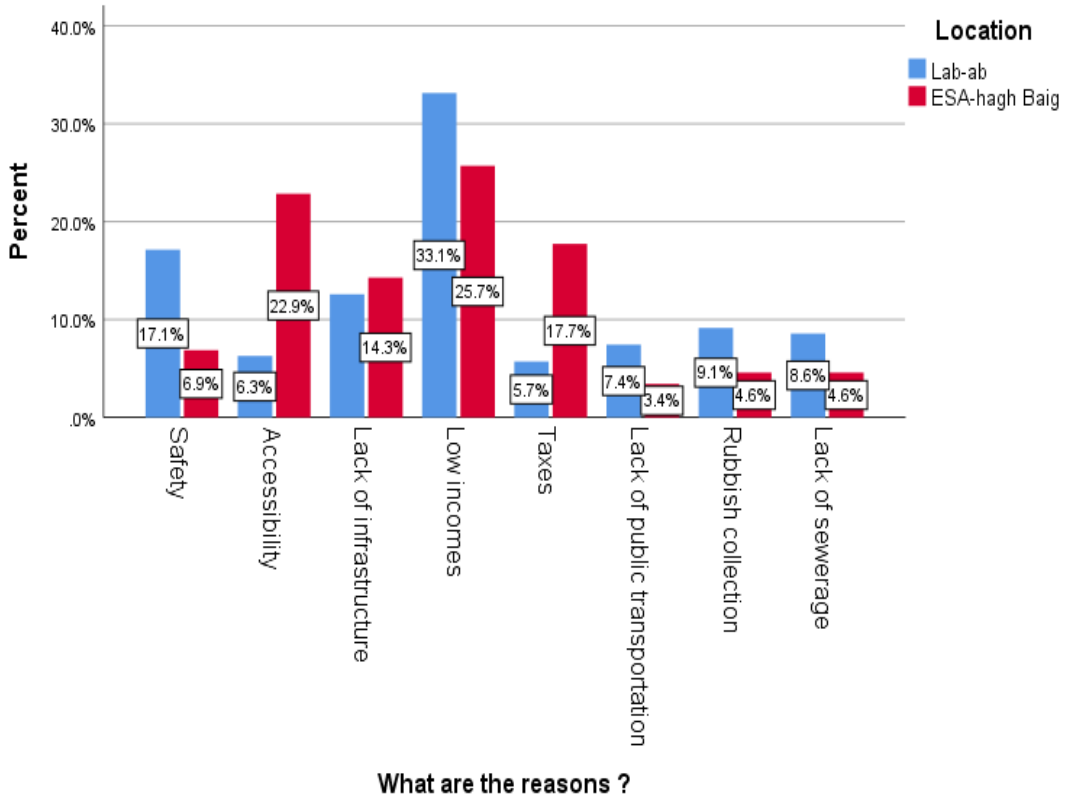
Question 14



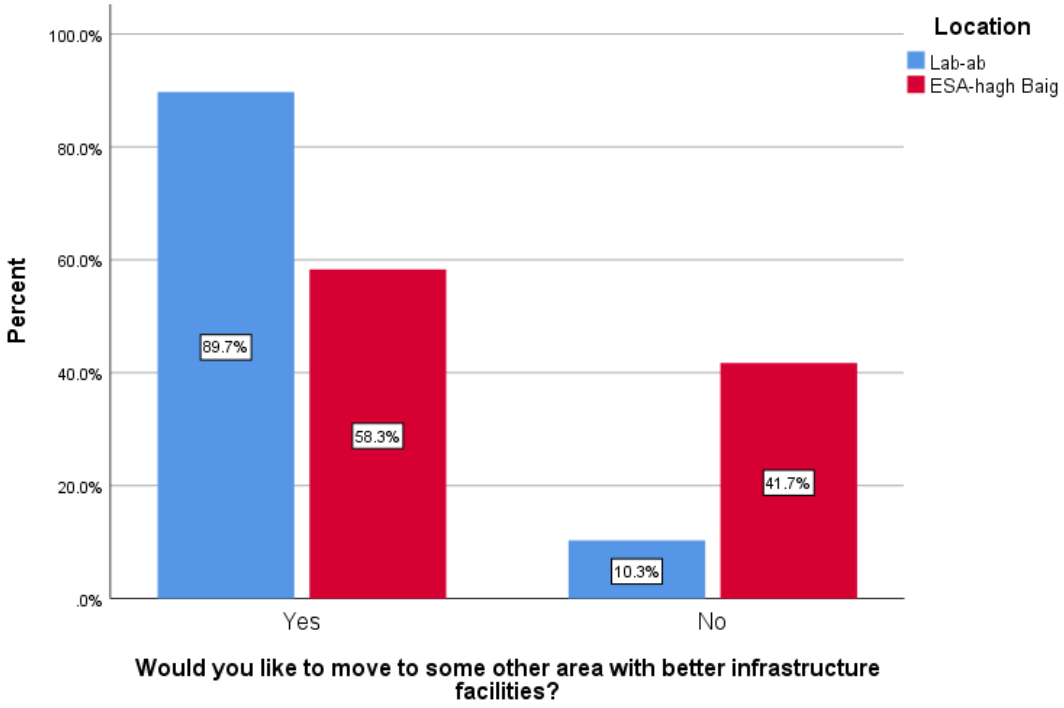
Question 15



Question 20



Question 21


Location
Lab-ab
ESA-hagh Baig
Percent
100.0%
80.0%
60.0%
40.0%
20.0%
.0%
89.7%
58.3%
10.3%
41.7%
Yes
No
Would you like to move to some other area with better infrastructure facilities?

Appendix 4

Pilot survey questionnaire

1. How much you are not inclined to change your locality (living place)?
2. Could you specify two foremost reasons for selecting this locality or living?
3. How much do you have relationship with your neighbors?

   Very High, High Moderate Low Very low
4. How much do you participate in public activities in your locality? (Such as Religious ceremonies and resolving the local affairs etc.)
5. How much it is possible the house owner constructs his/her property during 5-7 years later in future? Is your residential house involved of probation will?
6. Can you explain that how this neighborhood shaped?
7. How can you describe the characteristics of this neighborhood?
8. What kind of electricity system existed in neighborhood? What is the degree of the system quality?

Appendix 5

Shiraz historic fabric
Land-use map & Land-Use Coad

Zoning in a large scale	One digit Coad	Maine zone	Two digits Coad	Zoning areas	Three digits Coad	Sub-zones
Residential (R)	R1	General Residential	R11	Residential with low density	R111	Residential with 2 storeys
			R12	Residential with moderate density	R121	Residential with 3 storeys
					R122	Residential with 4 storeys
			R13	Resadential with high density	R131	Residential with 5 storeys
					R132	Residential with 6 storeys
	R2	Special Residential	R21	Residential in historic fabric	R211	Residential (Development & Protection)
					R212	Residential (Renovation; Improvement; Rehabilitation)
					R213	Residential (Restoration; Protection & changing the usage)
			R22	Residential in central historic fabric	R221	Special Residential with 4 storeys
					R222	Special Residential with 5 storeys
			R23	Special Residential in valuable tissue	R231	Valuable rural residential properties
			R24	Specially upscale residential	R241	Residential with 7-9 storeys
					R242	Residential with 10-12 storeys
			R25	Residential complexes	R251	Residential complexes with low density
					R252	Residential complexes with moderate density
					R253	Residential complexes with high density
					R254	Residential complexes extremely high density
					R255	

Zoning in a large scale	One digit Coad	Maine zone	Two digits Coad	Zoning areas	Three digits Coad	Sub-zones
Activities (S)	S2	Commercial centers - Administrative and Service, with the overcoming of Green & Open spaces	S23	Residential with low density Residential with moderate density	S231	Commercial centers - Administrative & Service with a predominance of Tourism (Metropolitan - City – Regional scales)
					S232	Commercial- Administrative & Services centers, with Cultural predominance
					S233	Commercial- Administrative & Services anes with cultural predominance
			S24	Public services zones	S241	Public service zones (Metropolitan - City – Regional scales)
					S242	Public service zones (Regional scales)
					S243	Public service zones (Neighbourhood scales)
					S244	Public Service Centres & Urban Facilities
					S244-F	Public Service Centres & Urban Facilities (storage and workshops for commercial spaces)
			S25	The axes and areas of tourism and cultural spheres	S251	Tourism & Cultural axes
					S252	Tourist - Cultural - Religious areas
					S253	Tourist & Historical areas
					S254	Areas of outstanding historic buildings and spaces
					S256	Cultural - Religious areas
	S3	Industrial-workshop	S31	Industry	S311	High-tech industries
			S32	Areas and axes of workshop spaces & Production spaces	S321	Manufacturing workshops
					S322	Workshop-manufacturing complexes

Zoning in a large scale	One digit Coad	Maine zone	Two digits Coad	Zoning areas	Three digits Coad	Sub-zones
Residential (R)	R1	General Residential	R11	Residential with low density	R111	Residential with 2 storeys
			R12	Residential with moderate density	R121	Residential with 3 storeys
					R122	Residential with 4 storeys
			R13	Residential with high density	R131	Residential with 5 storeys
					R132	Residential with 6 storeys
	R2	Special Residential	R21	Residential in historic fabric	R211	Residential (Development & Protection)
					R212	Residential (Renovation; Improvement; Rehabilitation)
					R213	Residential (Restoration; Protection & changing the usage)
			R22	Residential in central historic fabric	R221	Special Residential with 4 storeys
					R222	Special Residential with 5 storeys
			R23	Special Residential in valuable tissue	R231	Valuable rural residential properties
			R24	Specially upscale residential	R241	Residential with 7-9 storeys
					R242	Residential with 10-12 storeys
			R25	Residential complexes	R251	Residential complexes with low density
					R252	Residential complexes with moderate density
					R253	Residential complexes with high density
					R254	Residential complexes extremely high density
					R255	

Zoning in a large scale	One digit Coad	Maine zone	Two digits Coad	Zoning areas	Three digits Coad	Sub-zones
Mix-Use (M)	M1	Mix –use spaces (Commercial, Offices, Services & Residential) Special Residential	M11	Mix-Use Commercial-Office & Service anes, with Residential use	M111	Mix-Use Commercial-Office & Service anes, with Residential use (Metropolitan - City – Regional scales)
					M112	Mix-Use Commercial-Office & Service anes, with Residential use (Regional scales)
					M113	Mix-Use Commercial-Office & Service anes, with Residential use (Neighbourhood scales)
			M12	Mix-Use Commercial-Office & Service Areas, with Residential use	M121	Shared Commercial-Office & Service Areas, with Residential use (Metropolitan - City – Regional scales)
					M122	Mix-Use Commercial-Office & Service Areas, with Residential use (Regional scales)
					M123	Mix-Use Commercial-Office & Service Areas, with Residential use (Neighbourhood scales)
					M124	Special areas with Mix-Use Commercial-Office & Service with Residential use in accordance with a detailed urban design plan
			M13	Mix-Use Commercial-Office & Service Areas, with Residential use and overcoming the use of green spaces and open urban environments	M131	Mix-Use Commercial-Office & Service & Residential Areas with overcoming the use of green spaces and open urban environments
	M2	Mix –use spaces (Tourism & Cultural with Residential land use)	M21	Mix –use Axis & Areas (Residential, Cultural, Tourism& Recreational)	M211	Mix –use Axis & Areas (Cultural, Tourism & Recreational)
					M212	Mix –use Axis with Residential, Cultural, Tourism use (within historic streets)
	M3	Mix –use spaces (Workshop spaces & Production spaces & Residential areas)	M31	Specially upscale residential Residential complexes	M311	Mix-Use Workshop & Residential Axes
					M312	Mix-Use Workshop & Residential Areas

Zoning in a large scale	One digit Coad	Two digits Coad	Zoning areas	Three digits Coad	Sub-zones
Green areas & Urban Open spaces (Protection) (G)	Public Green spaces (G1)	G11	Urban Parks	G111	Public urban parks
				G112	Featured Parks (Ladys park)
		G12	Forest parks	G121	Protected Forest Parks
				G122	Forest theme parks
	Private Green spaces (G2)	G21	Gardens & Arable lands	G211	Gardens
				G212	Arable lands
	Green spaces & Urban Open spaces (Special Protection) (G3)	G31	Protected urban green and open spaces	G311	River - the valleys and stream
				G312	Green belt around highways
		G32	Special protection zones	G321	Historical Garden Areas
		R24	Specially upscale residential	G322	Special protection zones (Barracks)
				G323	Cultural Heritage protection zones

Appendix 6

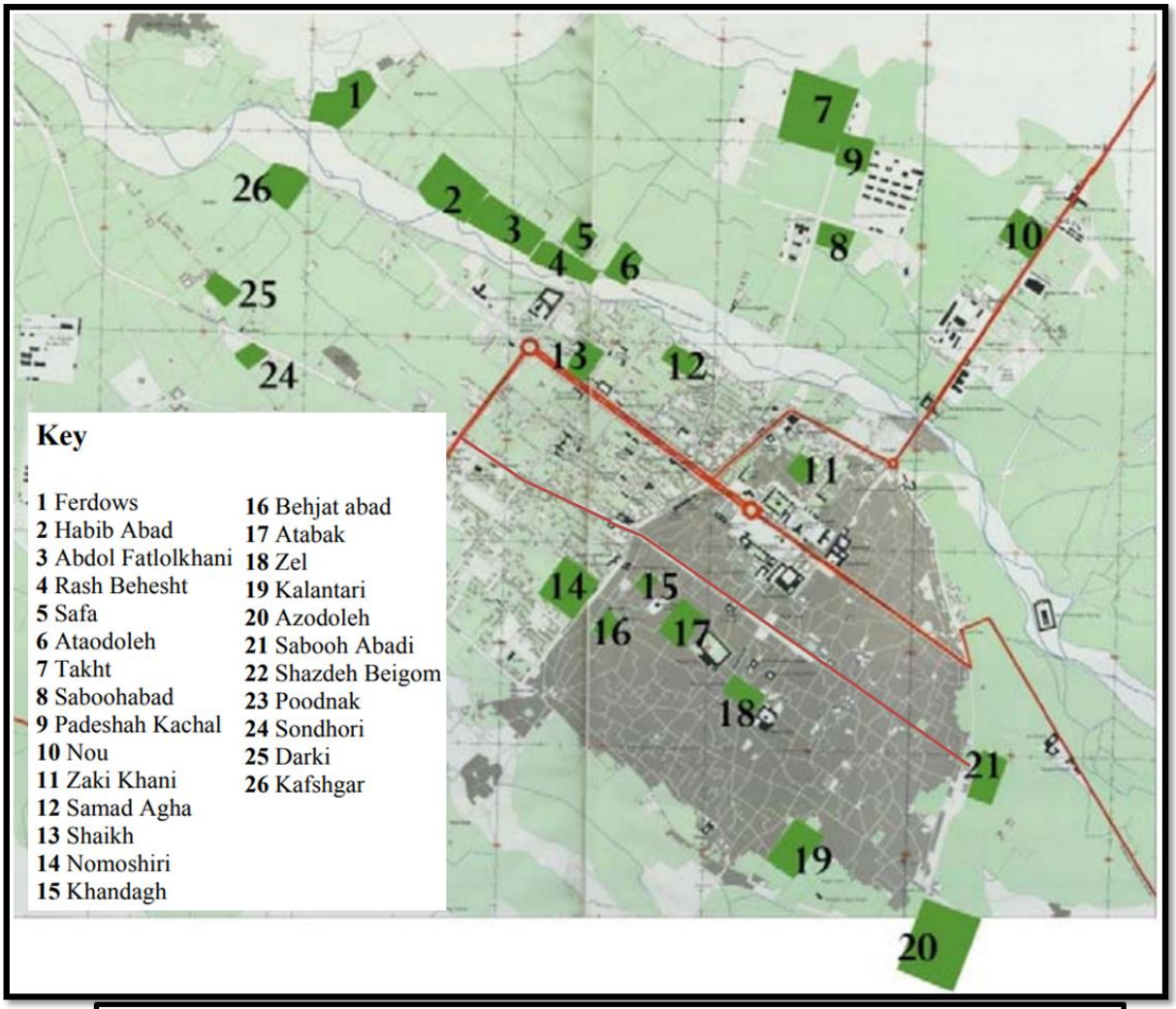
These figures have been removed from this version of the thesis due to copyright restrictions

Map of Shiraz and its gardens at the time of Karim Khan, (Source: Peter Avery, Gavin Hambly, and Charles Melville, eds., The Cambridge History of Iran: From Nadir Shah to the Islamic Republic. Vol. 7 (Cambridge: Cambridge University Press, 1991), p.101, highlight and numbers added by the author)

Historical development of Shiraz, a: Shiraz in Umayyad dynasty (661–750), b: Safavid period (1501-1736) c: Zand dynasty (1750-94) d:Qajar dynasty (1785–1925), (Source: The Document Centre of FCHHTO, Shiraz)

This figure has been removed from this version of
the thesis due to copyright restrictions

Above Left: Aerial photo of Shiraz depicting that some gardens such as the Nazar garden traversed by wide Karim Khan Boulevard. **Above Right: N**ew street plan of Shiraz in about 1930s which designed in contrast to traditional layout , (Source: John I. Clarke, The Iranian City of Shiraz, p.24 and p.19. highlighting the streets added by author);



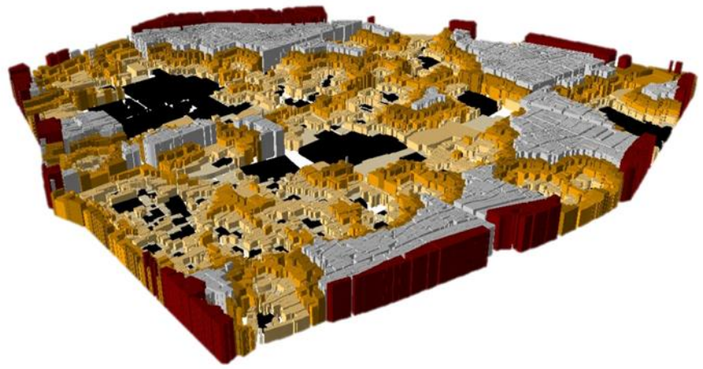
In Shiraz, in particular, from the map provided by Ariyanpour it can be seen that at least 30 significant historical gardens were demolished. Their approximate locations are shown in above figure.

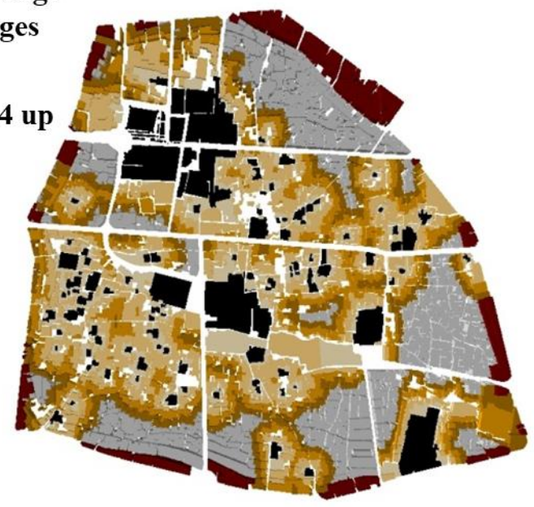
Appendix 7

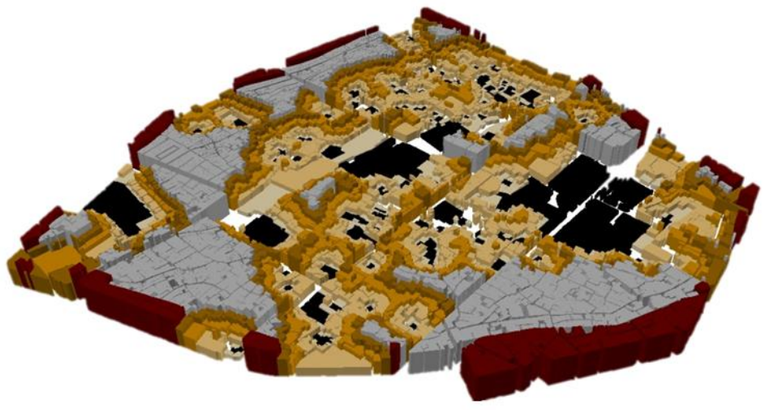
Proposed strategy for the increasing the number of storeys of buildings on the periphery of Shiraz historic core

General principals:

- **Buildings adjacent to the Historic Buildings: 1 Floor**
- **Gradually increase the number of floors, due to the distance from historic buildings**
- **Location of the buildings up to 6 stories high in the ring around the historical context.**
- **Location of commercial and office buildings on the edge of the historical context, along with historical passages of the same height**
- **The height of buildings in other locations, between 4 up to 6 floors**

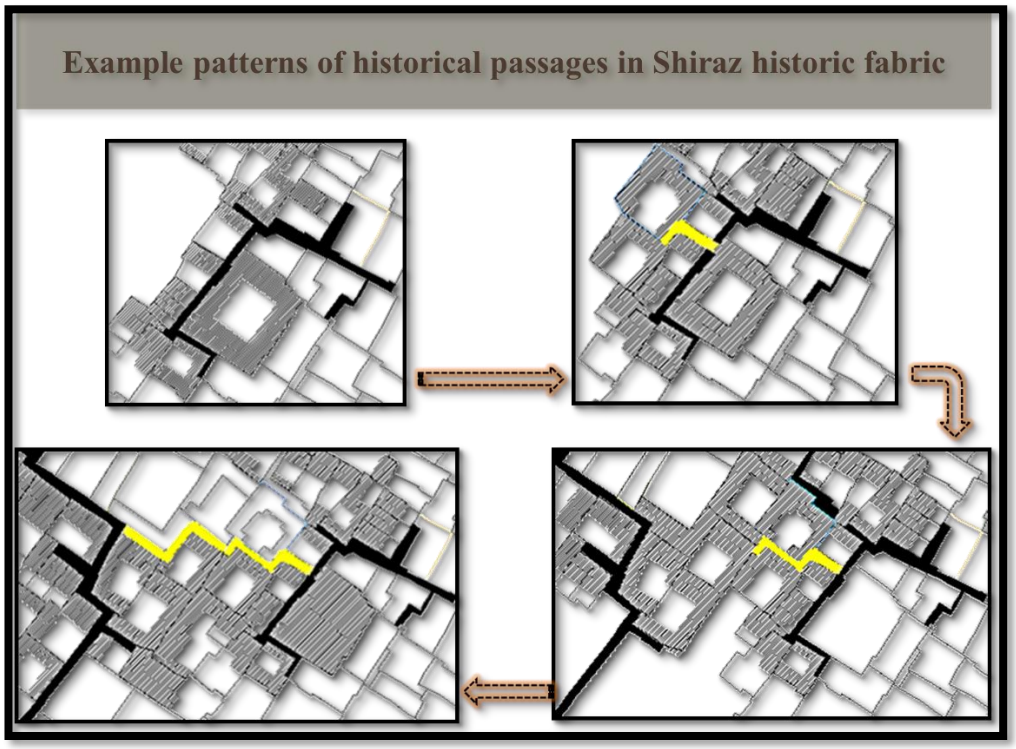


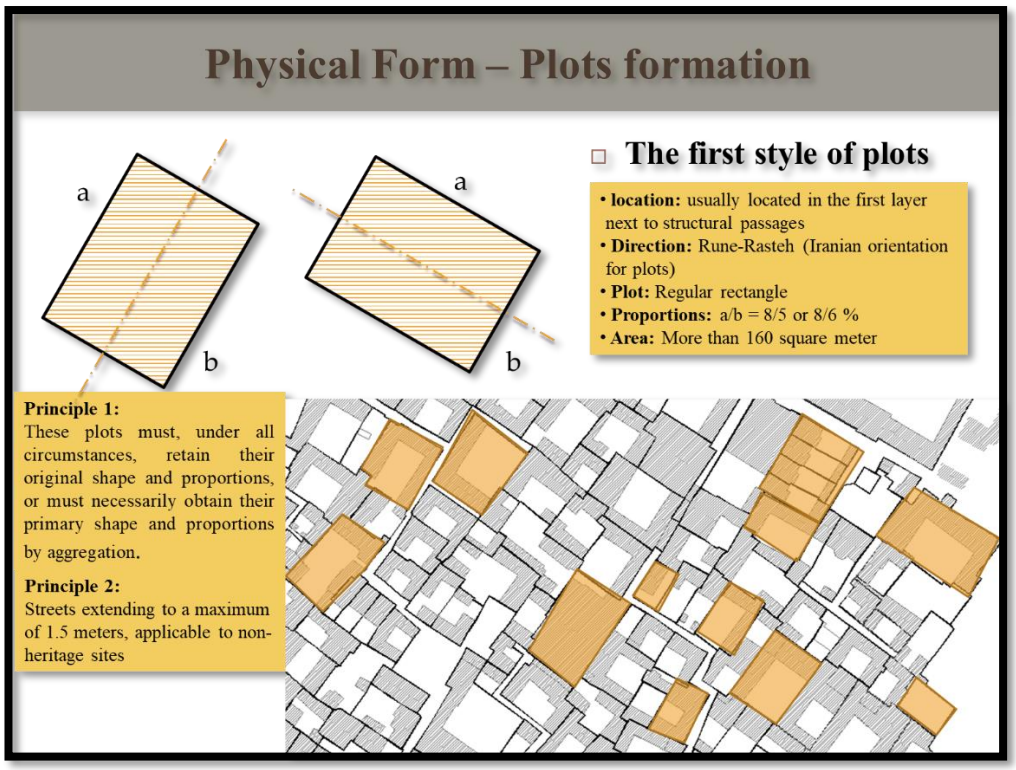




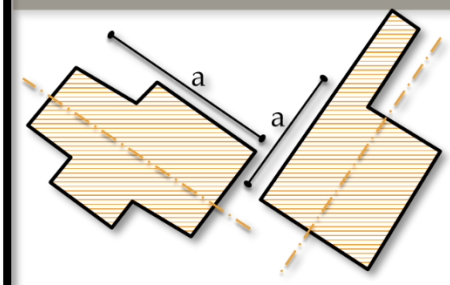
Appendix 8

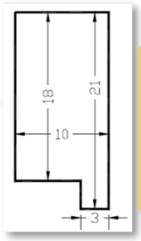
This section presents the analysis of physical formation of Shiraz historic fabric in relation to the streets and plots patterns.





Physical Form – Plots formation





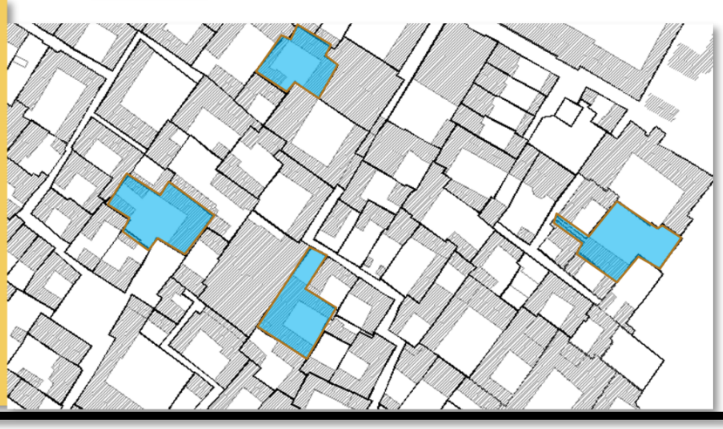
The second style of plots

- **location:** usually located in the second layer next to structural passages or in dead-end alleys
- **Direction:** Rune-Esfahan (Iranian orientation for plots)
- **Plot:** Non-regular, rectangular
- **Area:** More than 160 square meter

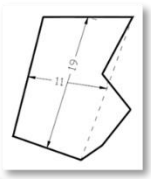
Principle 1:
These plots shall, under all circumstances, retain their original form, or be obtained by aggregation if necessary.

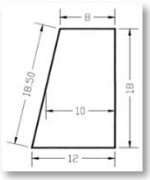
Principle 2:
Due to the manner in which these plots are deployed in relation to the passages, street-widening against them is unimpeded.

According to need and to make the connection between the public road and a dead-end road, parts of the plot can be transformed in accordance with the plans of action on public road.



Physical Form – Plots formation

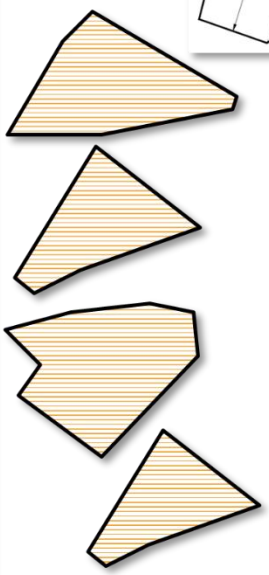


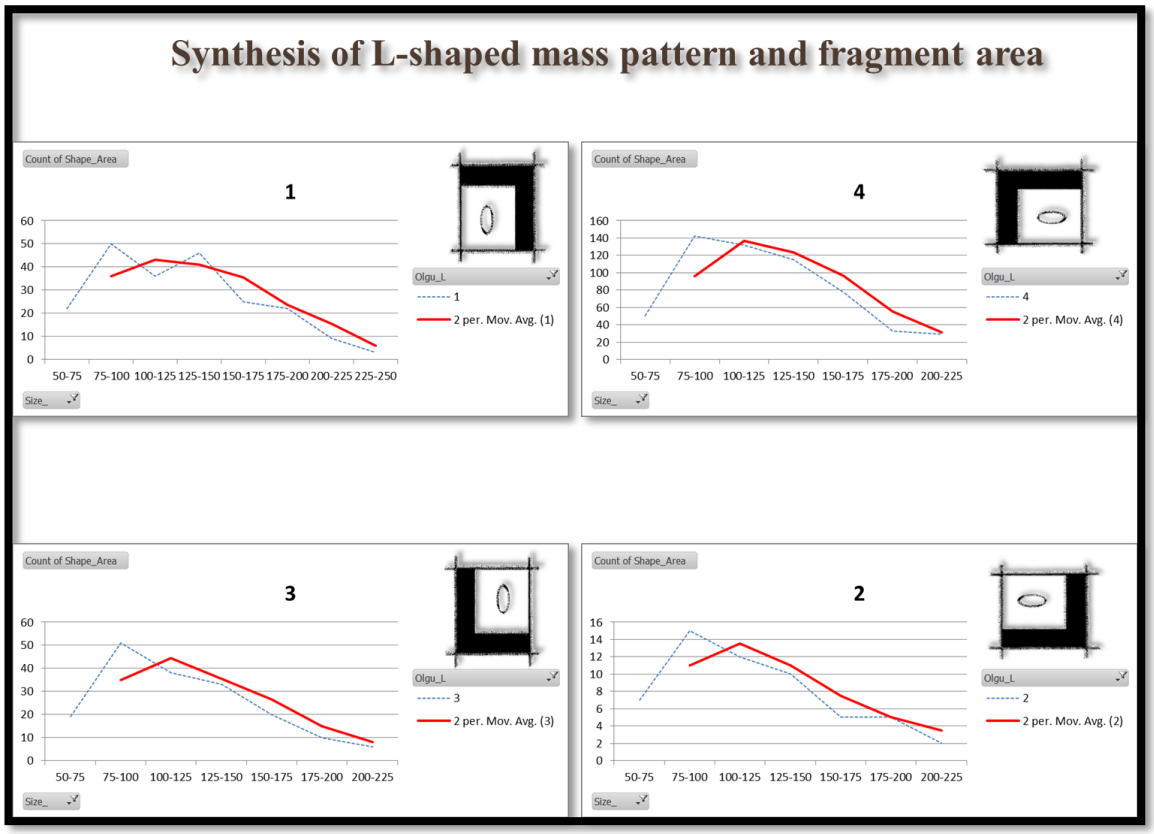


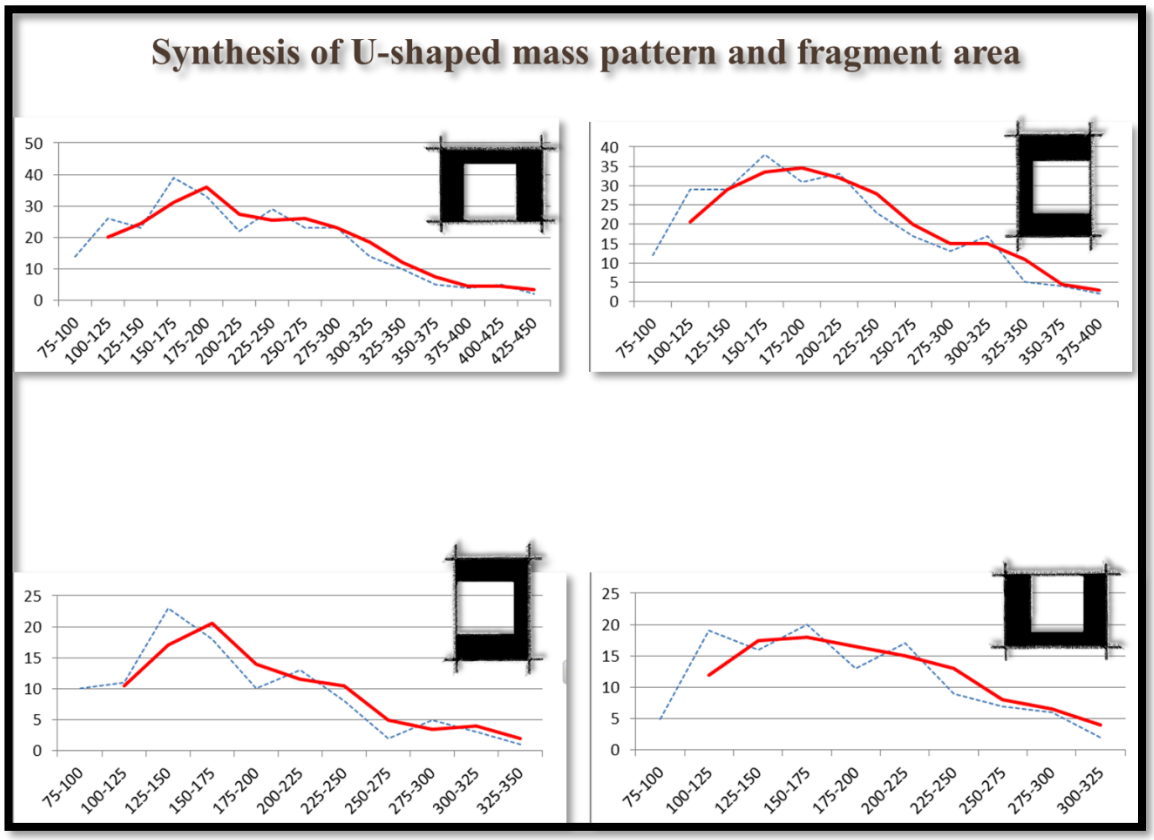
The third style of plots

- **location:** usually located in the first layer next to the passages
- **Plot:** Non-regular
- **Area:** Unknown due to irregular shape

Principle 1:
These pieces of land are suitable for demolition to be replaced or create parking lots and any supporting space required by the development plan.




Synthesis of L-shaped mass pattern and fragment area
Count of Shape_Area
1
60
50
40
30
20
10
0
50-75 75-100 100-125 125-150 150-175 175-200 200-225 225-250
Size_
Olgu_L
1
2 per. Mov. Avg. (1)
Count of Shape_Area
4
160
140
120
100
80
60
40
20
0
50-75 75-100 100-125 125-150 150-175 175-200 200-225
Size_
Olgu_L
4
2 per. Mov. Avg. (4)
Count of Shape_Area
3
60
50
40
30
20
10
0
50-75 75-100 100-125 125-150 150-175 175-200 200-225
Size_
Olgu_L
3
2 per. Mov. Avg. (3)
Count of Shape_Area
2
16
14
12
10
8
6
4
2
0
50-75 75-100 100-125 125-150 150-175 175-200 200-225
Size_
Olgu_L
2
2 per. Mov. Avg. (2)


Synthesis of U-shaped mass pattern and fragment area
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40
30
20
10
0
75-100 100-125 125-150 150-175 175-200 200-225 225-250 250-275 275-300 300-325 325-350 350-375 375-400 400-425 425-450
40
35
30
25
20
15
10
5
0
75-100 100-125 125-150 150-175 175-200 200-225 225-250 250-275 275-300 300-325 325-350 350-375 375-400
25
20
15
10
5
0
75-100 100-125 125-150 150-175 175-200 200-225 225-250 250-275 275-300 300-325 325-350
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20
15
10
5
0
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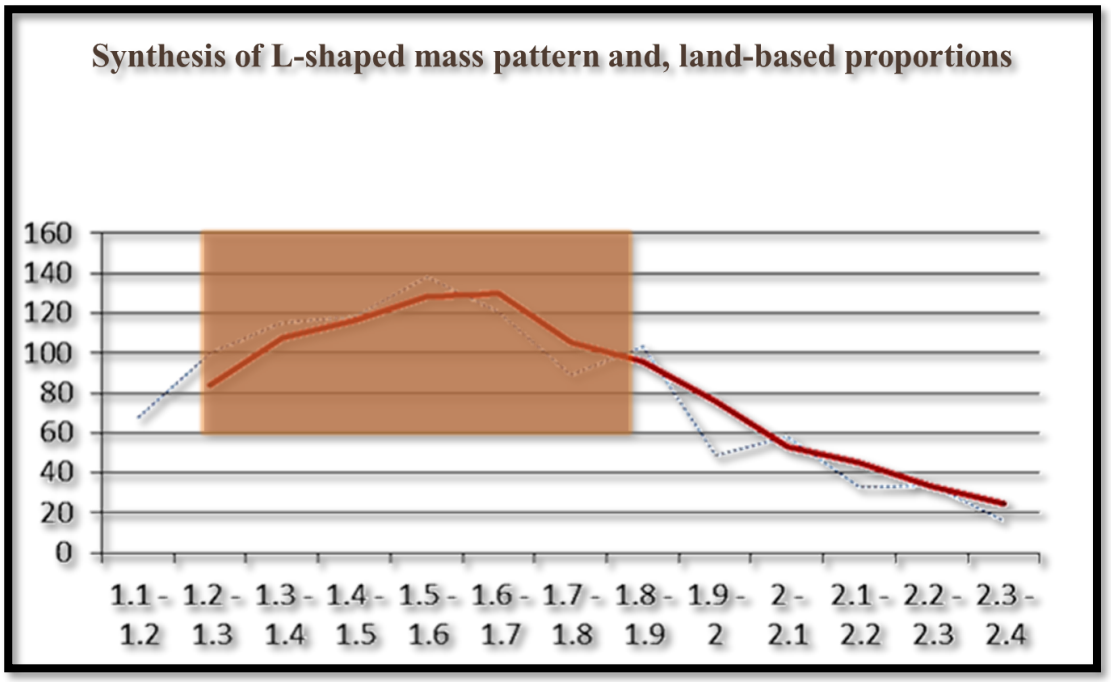
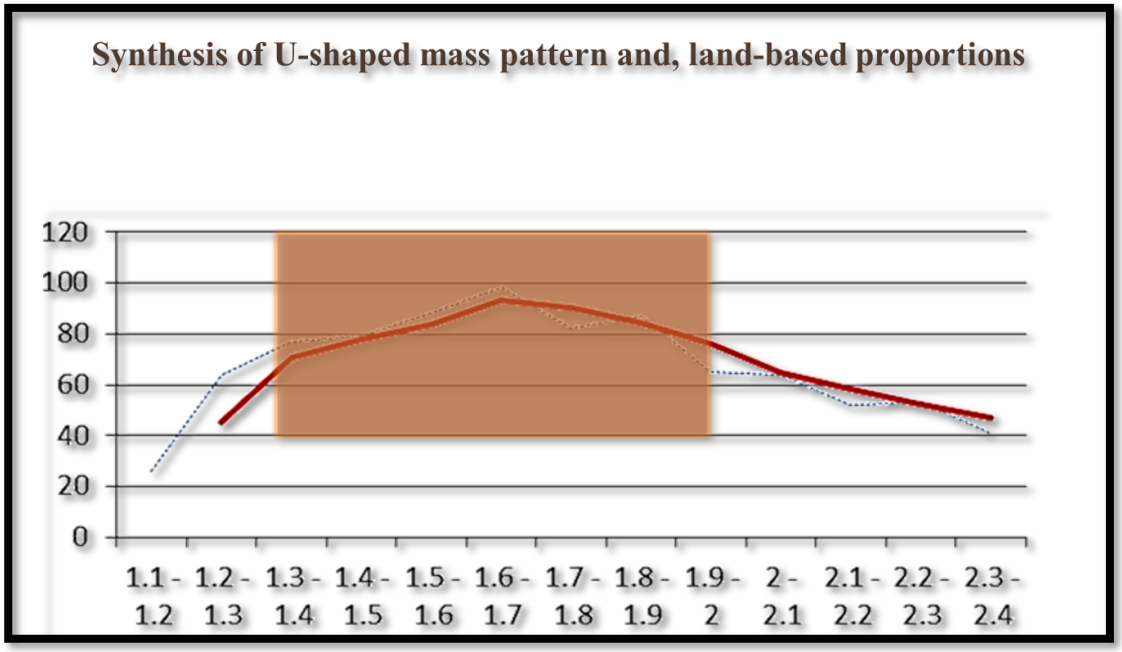
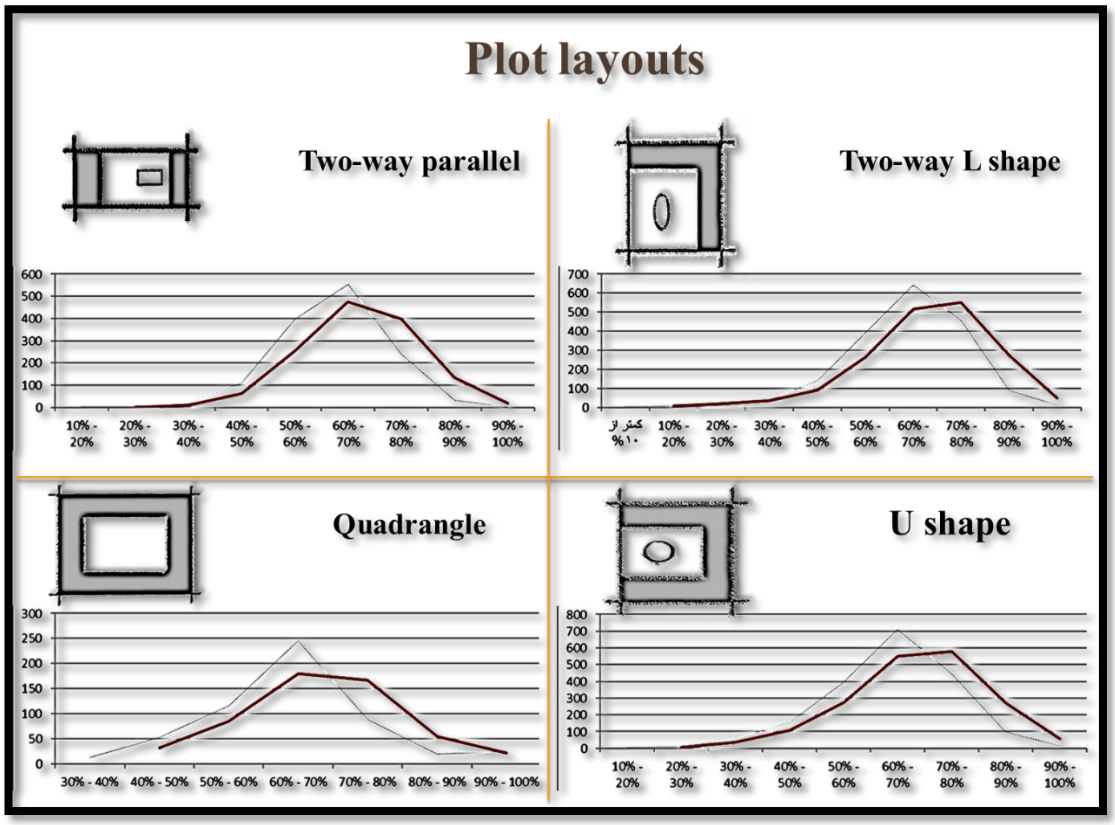
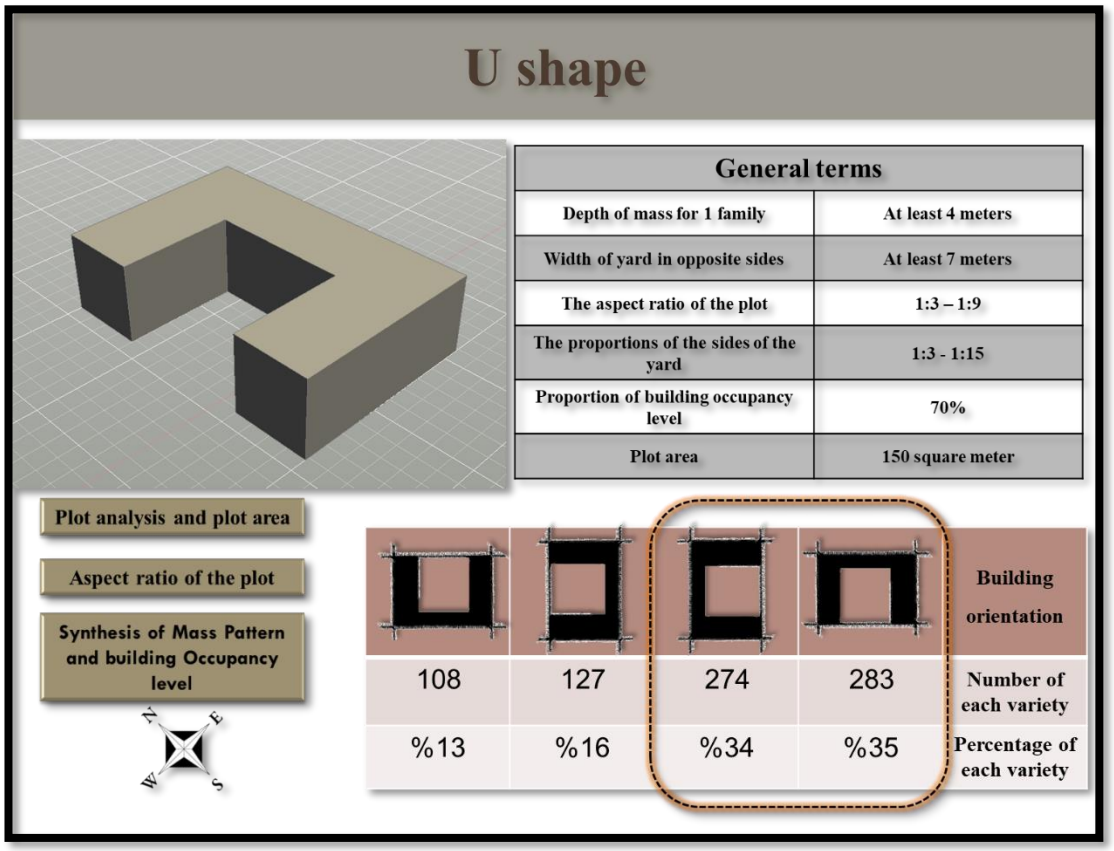
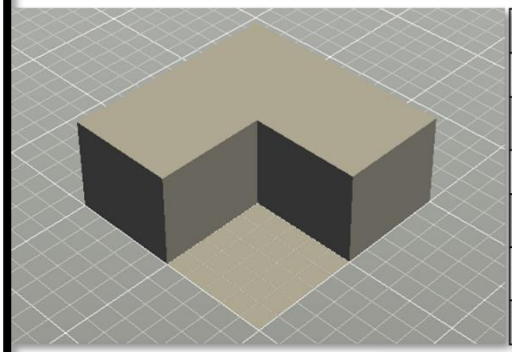

Synthesis of L-shaped mass pattern and, land-based proportions
160
140
120
100
80
60
40
20
0
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2
2 - 2.1
2.1 - 2.2
2.2 - 2.3
2.3 - 2.4


Synthesis of U-shaped mass pattern and, land-based proportions
120
100
80
60
40
20
0
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2
2 - 2.1
2.1 - 2.2
2.2 - 2.3
2.3 - 2.4


Plot layouts
Two-way parallel
Two-way L shape
Quadrangle
U shape
10% - 20%
20% - 30%
30% - 40%
40% - 50%
50% - 60%
60% - 70%
70% - 80%
80% - 90%
90% - 100%
30% - 40%
40% - 50%
50% - 60%
60% - 70%
70% - 80%
80% - 90%
90% - 100%


U shape
General terms
Depth of mass for 1 family
At least 4 meters
Width of yard in opposite sides
At least 7 meters
The aspect ratio of the plot
1:3 – 1:9
The proportions of the sides of the yard
1:3 - 1:15
Proportion of building occupancy level
70%
Plot area
150 square meter
Plot analysis and plot area
Aspect ratio of the plot
Synthesis of Mass Pattern and building Occupancy level
N
E
W
S
Building orientation
108
127
274
283
Number of each variety
%13
%16
%34
%35
Percentage of each variety

Two-way L shape

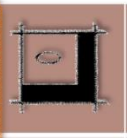
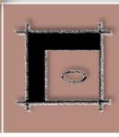


General terms	
Depth of mass for 1 family	At least 4 meters
Depth of mass for more than 1 family	At least 5.5 meters
The aspect ratio of the plot	1:1 – 1:3
The proportions of the sides of the yard	1:1 or 1:3
Proportion of building occupancy level	70%
Plot area	75 square meter

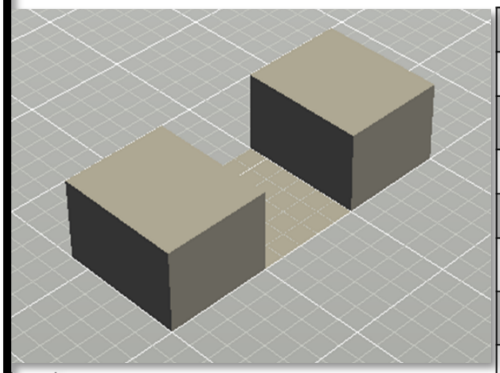
Plot analysis and plot area

Aspect ratio of the plot

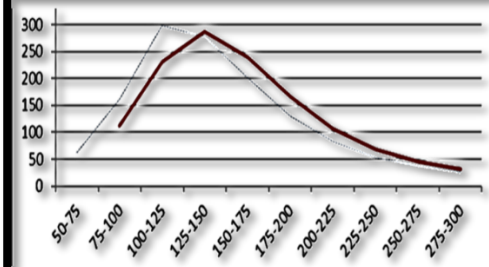
Synthesis of Mass Pattern and building Occupancy level

				Building orientation
228	60	192	639	Number of each variety
%20	%5	%17	%57	Percentage of each variety

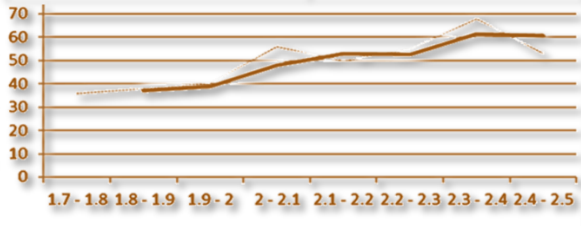
Two-way parallel



General terms	
Depth of mass in the side of entrance	At least 5 meters
Depth of mass in the opposite side of entrance	At least 4 meters
Distance between two masses	At least 5 meters
The aspect ratio of the plot	1:2 or more
The proportions of the sides of the yard	1:30 or 1:15
Proportion of building occupancy level	65%
Plot area	90 square meter

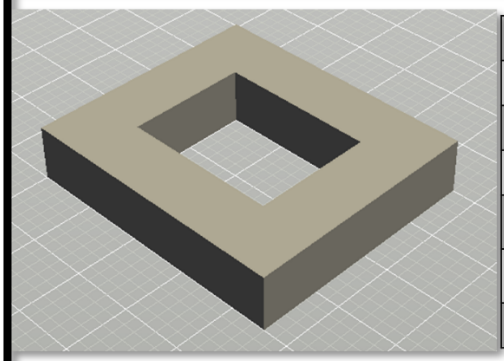


Plot analysis based on plot area

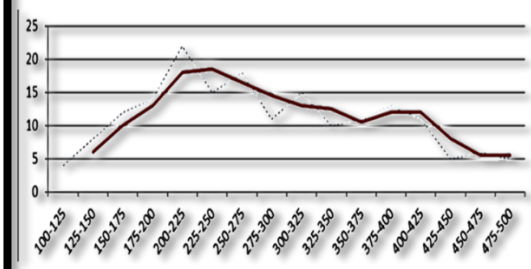


Plot analysis based on plot dimensions

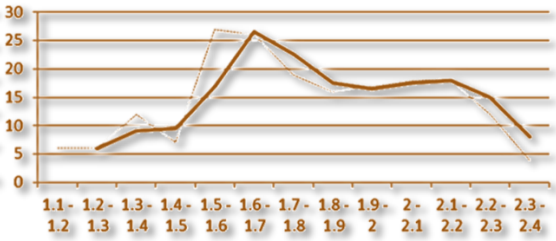
Quadrangle



General terms	
Depth of mass	At least 4 meters
Depth of masses (Yard width)	At least 7 meters
The aspect ratio of the plot	1:2 - 1:8
The proportions of the sides of the yard	1:30 - 1:15
Proportion of building occupancy level	70%
Plot area	200 square meter



Plot analysis based on plot area



Plot analysis based on plot dimensions

Appendix 9

Iranian political structure